Canovision 8

SERVICE MANUAL

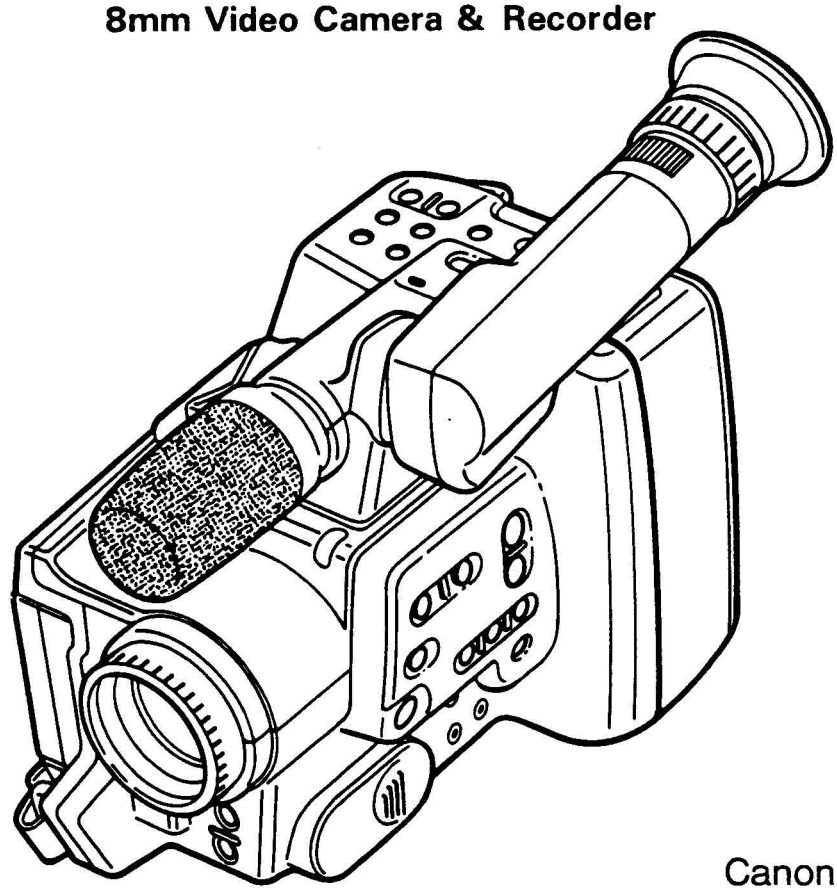
A10E,F

(REF. NO. D15-3630)

8mm Video Camera & Recorder

PAL

F • PAL



DY8-1153-630-000
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Canon Inc.
Video Technical Service Dept.
First Edition:Dec. 1990
Printed in Japan

SAFETY PRECAUTIONS

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine CANON replacement parts.
   Especially critcal parts in the power circuit block should not be replaced with other makes.
   Critical parts are marked with ⚠ in the schematic diagrams.
2. The primary source of X-ray rediation in this viewfinder is the picture tube. The tube used in the viewfinder is especially constructed to limit X-ray radiation emission.
   For continued X-ray radiation protection, the replacement tube must be same type as the original, CANON approved one.
3. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been oberheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
5. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

5 − 1 Leakage Current Cold Check

1) Unplug the AC cord and connect a jumper between the two prongs on the plug.
2) Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metalic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metalic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ. When the exposed metal does not have a return path to the chassis, the reading must be ∞.

5 − 2 Leakage Current Hot Check

1) Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2) Connect a 1.5MΩ 10 watt resistor, paralleled by 0.5 μF capacitor, between each exposed metalic parts on the unit and a good earth ground such as a water pipe, as shown in the figure below.
3) Use an AC voltmeter, with 1000Ω/volt or more sensitivity, to measure the potential across the resistor.
4) Check all exposed metallic parts of the cover (Cable connection, Handle bracket, metallic cabinet. Screwheads, Metallic overlays, etc), and measure the voltage at each point.
5) Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6) The potential at any point should not exceed 0.75V RMS.
   A leakage current tester (FLUKE MODEL: 8000A equivalent) may be used to make the hot checks.
   Leakage current must not exceed 0.5 milliamp.
   In case a measurement is out side of the limits specified, there is a possibility of a shock hazard, and corrective action must be taken before returning the instrument to the customer.

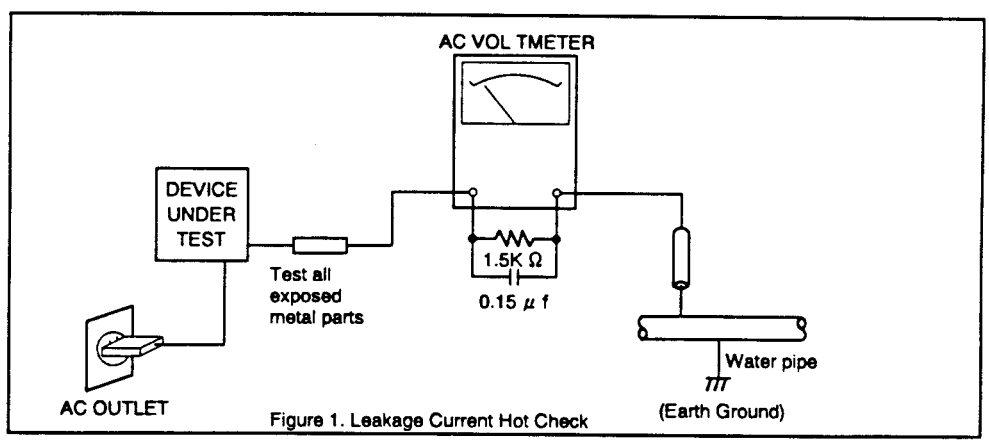

Figure 1. Leakage Current Hot Check

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1. Product Overview

The Model A10, a new and lighter addition to Canon's compact lightweight 8 mm video camcorders after E6, features an inner-focus 8x zoom lens and an A1 type body.

1-1 Main features

1) Superlative picture quality and sound fidelity
   - ○ Stereo microphone built in for reproduction of realistic stereophonic sound effect
   - ○ Backlight compensation
   - ○ Automatic white balancing (AWB) through 25-area split screen evaluation system and an auto knee circuit
   - ○ Exposure compensations such as under-exposure and over-exposure in AE shooting that permit the user to realize his or her intention.

2) Advantageous functions
   - ○ Auto-date/title (character generator) in color
   - ○ Stereo headphone terminal
   - ○ Variable-speed zooming (high- and low-speed)
   - ○ Linear time counter
   - ○ High-speed electronic shutter (1/1000 sec, 1/500 sec)
   - ○ Fuzzy AF enabling wide macro AF as well as tele-macro AF

3) Ease of use
   - ○ Information timer (for telling the user an initial ten-second period at the start of videographing)
   - ○ Wireless remote controller (WL-400)
   - ○ Double-function keys

4) Small size and light weight
   - ○ Compact design of 8x focus zoom lens
   - ○ Compact four-head mechanism chassis

1-2 Component design features

Table I-1 shows the unique design features of the Model A10 components.

Lens	Camera section			Recorder section		
	AF circuit	CCD	SENSOR and PROCESS circuit	VIDEO circuit	SYSCON-SERVO circuit	Mechanism
8x zoom lens	Based on fuzzy AF H800 design	320,000 pixels (300,000 pixels effective)	Based on E30 design	Based on E06 design	SYSCON: Newly developed SERVO: Based on E6 design	MC-FL mechanism

Table I-1

1-3 Model A10 and controls

Camera(Right View)

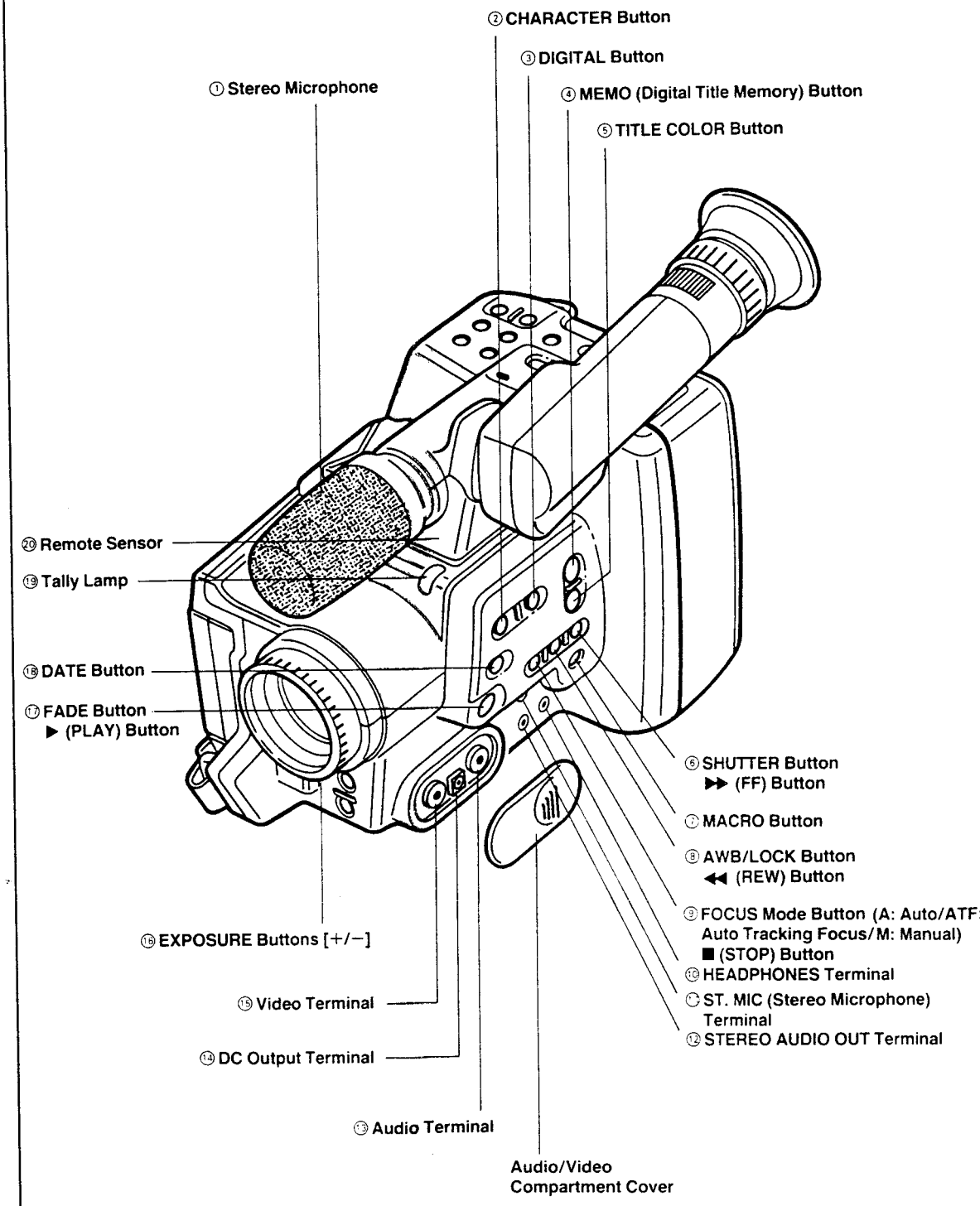


Fig. I-1

Camera(Left View)

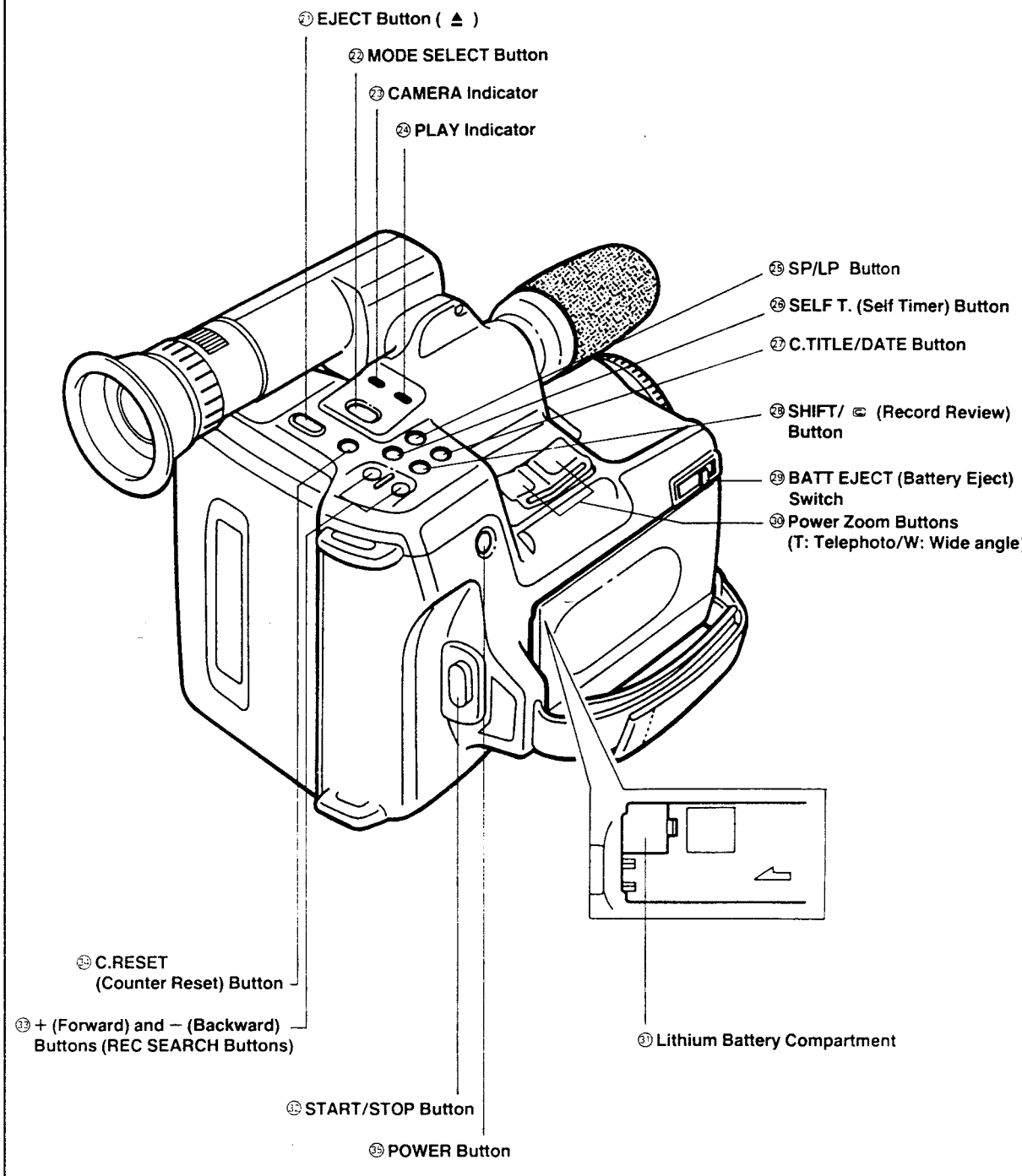

㉑ EJECT Button (▲)
㉒ MODE SELECT Button
㉓ CAMERA Indicator
㉔ PLAY Indicator
㉕ SP/LP Button
㉖ SELF T. (Self Timer) Button
㉗ C.TITLE/DATE Button
㉘ SHIFT/ ⊂ (Record Review) Button
㉙ BATT EJECT (Battery Eject) Switch
㉚ Power Zoom Buttons (T: Telephoto/W: Wide angle)
㉛ Lithium Battery Compartment
㉜ + (Forward) and − (Backward) Buttons (REC SEARCH Buttons)
㉝ C.RESET (Counter Reset) Button
㉞ START/STOP Button
㉟ POWER Button

Fig. I-2

1-4 Brief description of control buttons, terminals and external parts

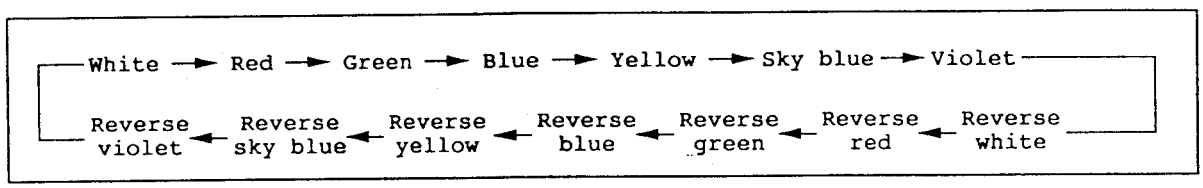
① Stereo microphone
Stereo directional microphone.

② Character title display button
Press this button to superimpose a memorized character title on the scene being videographed.
You cannot create a character title during recording but can change its color. In the PLAY mode, you are not allowed to create or record a character title.

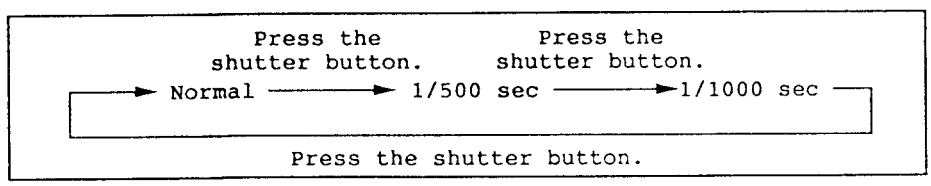
③ Digital title display button
Press this button to superimpose a digital title memorized and colored with buttons ④ and ⑤ on the scene being videographed.
You cannot create a digital title during recording but can change its color. In the PLAY mode, you are not allowed to create or record a digital title.

④ Digital title memory button
Press this button to store a user-prepared title in digital memory. Holding down this button changes the black and white threshold level in 16 steps, which permits you to store rather an indistinct title.

⑤ Digital title color button
You can change the color of a title stored with button ④. Holding down this button more than three seconds sets up the see-through color mode. In this mode you can see a videographed picture through the transparent title.


White → Red → Green → Blue → Yellow → Sky blue → Violet
Reverse violet ← Reverse sky blue ← Reverse yellow ← Reverse blue ← Reverse green ← Reverse red ← Reverse white

⑥ High-speed shutter button/▶▶ FF button
Camera mode: Functions as a high-speed shutter button.
You can select two types of shutter speed as shown below.



Play mode: ▶▶ Functions as a FF button
Pressing this button in the stopped state causes the video tape to be fed fast. Holding it down during playbackreproduces pictures forward rapidly at a speed of 7 × fast motion. The normal playback operation resumes when you release this button.
Holding down this button during fast-forward operation reproduces pictures forward rapidly at a speed of 7 × fast motion.

⑦ Macro button
Pressing this button during AF operation causes the zoom lens to move to a wide macro area for zoom focusing.(By pressing this in manual mode and pushing the zoom switch, the wide macro focusing can be made.)

⑧ AWB lock button/◀◀ REW button

Camera mode: Functions as an AWB lock button.
Pressing this button in the full-auto white balancing state causes the camcorder to lock the current white balance. "WB LOCK" is indicated on the viewfinder screen in this AWB locked state. By bressing this button again, the full-auto white balancing is resumed. The AWB locking is released automatically when you turn off power or switch to the play or line input mode.

Play mode: Functions as a ◀◀ REW button.
Pressing this button in the stopped state rewinds the video tape.
Holding it down during playback reproduces pictures in the reverse sequence rapidly at a speed of 5 × fast motion. The normal playback operation resumes when you release the button.
Holding down this button during rewinding reproduces pictures in the reverse sequence rapidly at a speed of 5 × fast motion.

⑨ Focus button/■ stop button

Camera mode: Functions as a focus button.
You can select auto focus, tracking auto focus, and manual focus with this button.
A zone will be displayed in the viewfinder screen if you have selected an auto focus or tracking auto focus option.

Play mode: ■ stop button
Pressing this button stops tape transport.

⑩ Headphone terminal

You can monitor stereo sound by connecting a stereo headphone on the market to this headphone terminal.

⑪ Stereo microphone terminal

An external stereo microphone terminal. Audio monitoring is not permitted except during recording pause or recording.

⑫ Stereo audio output terminals

Used for output of stereo sound.

⑬ Monaural audio terminal

Output terminal for audio signal.

⑭ RF unit/MM200DC output terminal

Used for supplying +5V power to the RF unit RU-E3 or the stereo mixing microphone MM200.

⑮ Video terminal

Output terminal for video signal.

⑯ Exposure compensation button [+/-]

Compensate the exposure with the [-] button if a subject is too bright and with the [+] button if a subject is too dark. The compensation can be done in four steps in the [+] direction and three steps in the [-] direction with marks -1.5, -1.0, standard (no indication), +0.5, +1.0, +1.5, and +2.0 shown on the viewfinder screen.

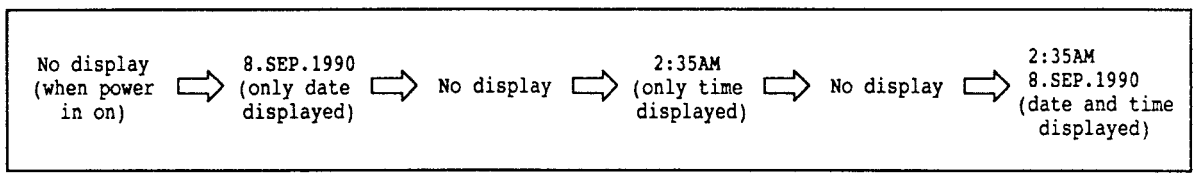
⑰ Fade button/▶ Play button

Camera mode: Functions as a fade button.
Holding down this button causes the image and sound to disappear gradually (fade-out). When you release this button, they gradually appear (fade-in). White fading lasts approximately for four seconds. Note that the fading function is not interlocked with the trigger button.

Play mode: Functions as a ▶ play button.
Press this button to start playback operation.

⑱ Date button

Pressing this button displays the date/time on the screen.
This function is not valid in the play or the line input mode.


No display (when power in on)
8.SEP.1990 (only date displayed)
No display
2:35AM (only time displayed)
No display
2:35AM 8.SEP.1990 (date and time displayed)

⑲ Tally lamp

This lamp blinks during camera recording or self-timer operation. It lights up when a remote control signal is received.

⑳ Remote sensor

A window through which signals from the remote controller are received. The light-receivable range is about 30 degrees on each of the left and right angular sides and about 15 degrees on each of the upper and lower angular sides with respect to the face of remote sensor. The maximum remote control distance is 5 meters.

㉑ Cassette eject button

Press this button to take out the cassette tape except in the recording mode. The user can remove the cassette tape even in the power-off state.
Loading/unloading of the cassette tape takes two steps: manual to motorized and vice versa.

㉒ Mode select button

Each press of this button toggles between the play mode (the green indicator lights up) and the camera mode (the red indicator lights up).
The functions of buttons ⑥ , ⑧ , ⑨ , ⑰ change with the mode switched by this button. (Double function keys)

㉓ Green indicator (play mode)

This indicator lights up during playback operation. When the voltage level of battery decreases down to the lower limit or moisture condensation occurs, this indicator blinks to give warning.
The camera mode is selected automatically at power-on.

㉔ Red indicator (camera mode)

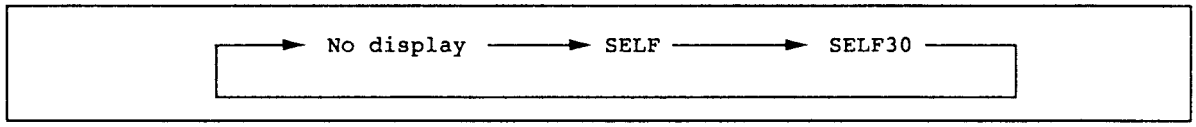
This indicator lights up during recording operation. When the voltage level of battery decreases down to the lower limit or moisture condensation occurs, this indicator blinks to give warning.

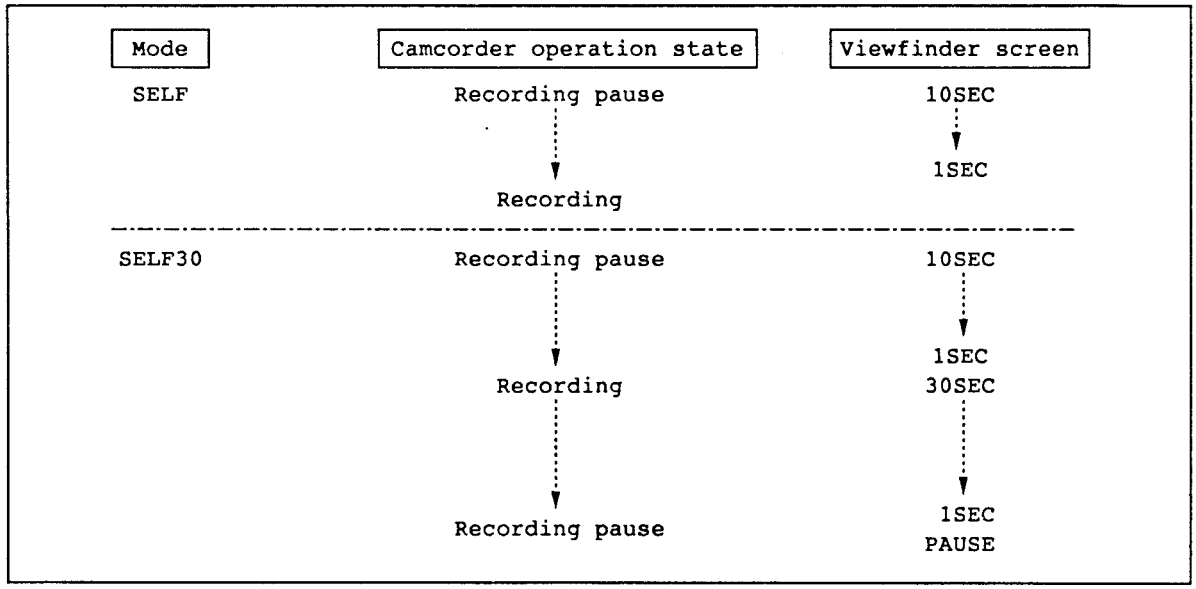
㉕ SP/LP button

SP or LP recording mode is selectable at REC PAUSE, REW or stop mode.

㉖ Self timer button

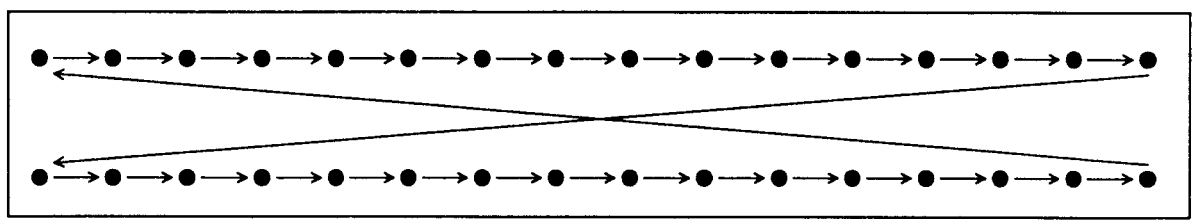
The self-timer menu is displayed on the viewfinder screen.



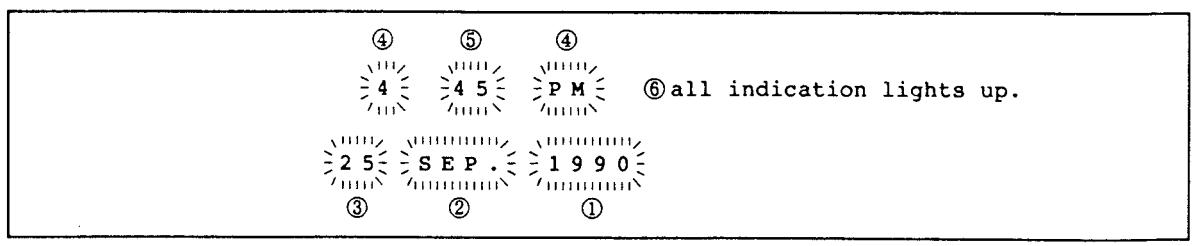


㉗ Character title/date setting button

- After pressing this button in the camera mode, you can shift the title character position (16 characters by 2 lines) with the shift button ㉘.



- In the camera mode, hold down this button for about three seconds. Then "year" indication blinks on the viewfinder screen. In this condition, you can select the auto date items ("year", "month", "day", "hours", "minutes") with the shift button ㉘.



㉘ Shift button/ ⊂► Record review button

When a character title/date is set, this button functions as a shift button. Select the position of the character to be set, setting year, month, day, hours, and minutes. (See ㉗.)

During recording pause, this button functions as a record review button. When you press this button, the camcorder plays back the video tape for about three seconds, checks the record state, returns to the position of the pause, and enters the recording pause state again.

㉙ Battery eject switch

Slide this switch upward to take the battery pack out of the battery box.

㉚ Power zoom button

You can change the frame (screen angle) continuously from the wide angle to telephoto range. The frame changes slowly if the button is pressed lightly, and quickly if pressed hard (two types of speed: about 7 seconds and 10 seconds for change from telephoto to wide angle ends). The zoom position is indicated on the viewfinder screen. Use this button to focus for wide macro in manual AF.(Wide macro mode can be set by pressing the button⑦.)

㉛ Lithium battery mount

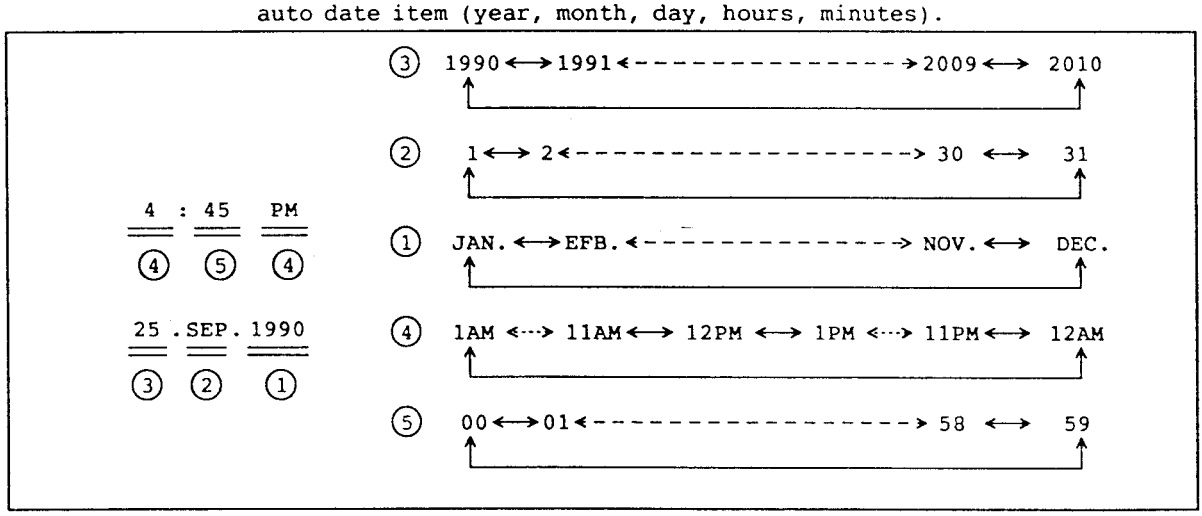
A box housing a lithium battery for the auto date function. (The lithium battery lasts about one year.)

㉜ Start/stop button

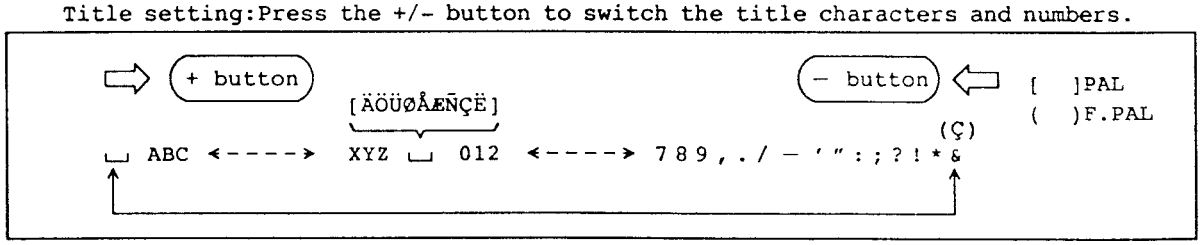
When you press this button in the recording pause state, the recording operation resumes. Pressing it again causes the camcorder to return to the recording pause state. When you press this button during playback, the picture is made still. To return to the normal playback mode, press this button again or the play button. In the self-timer mode, you can start or cancel the self timer with this button.

㉝ +/- (record search) button

Date setting: Pressing this +/- button allows you to set up a desired value in the auto date item (year, month, day, hours, minutes).



Title setting:Press the +/- button to switch the title characters and numbers.



Recording pause:Pressing the + button causes a forward playback and the - button a backward playback. When you release the button, a still picture appears instantly and the camcorder returns to the recording pause state. This permits the user to start recording at a desired location.

㉞ Counter reset button

Pressing this button in all mode resets the linear time counter to zero (0:00:00).

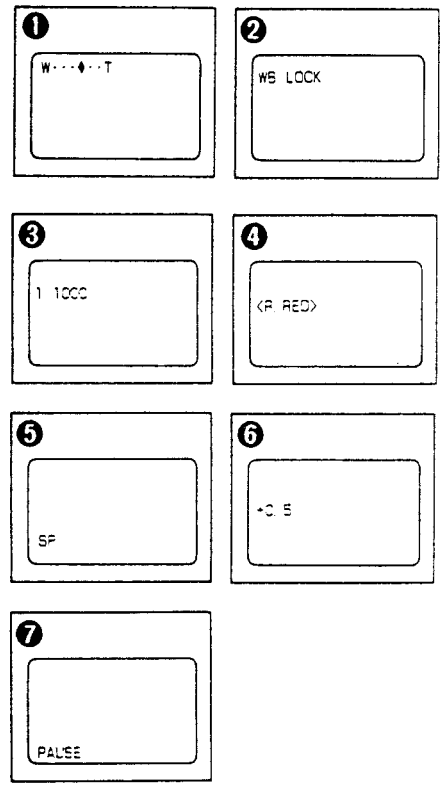
㉟ Power button

Pressing this button turns on/off the power.

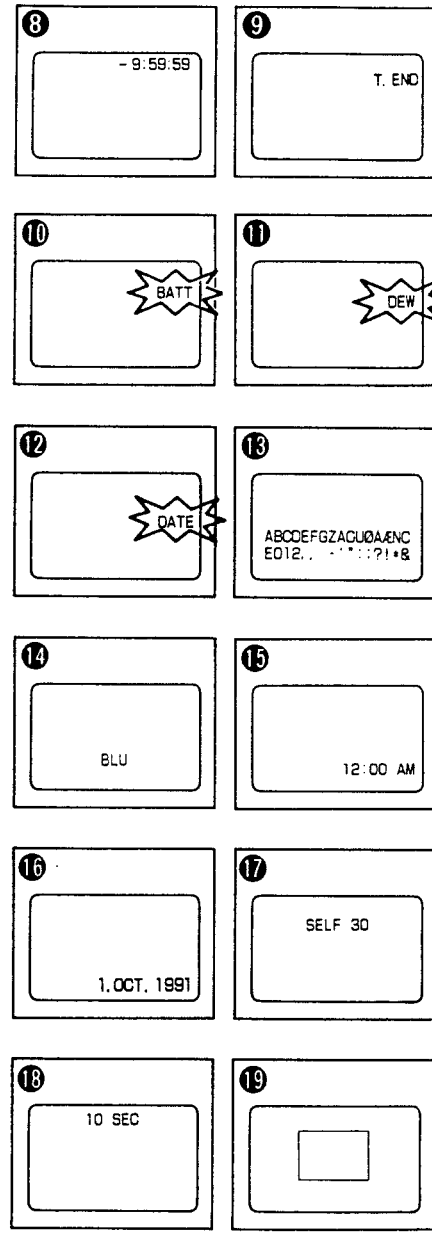
1-5 Information display on the electronic viewfinder

(1) PAL

NO.	Mode	Display	Description
❶	Zoom Lens Position	W···◆··T	◆ indicates the approximate focal length of the zoom lens.
		MACRO	Zoom lens set to wide macro mode.
❷	White Balance	No display	Auto white balance
		WB LOCK	White balance lock
❸	High Speed Shutter	No display	Normal shutter speed (1/50)
		1/500	1/500th of a second
		1/1000	1/1,000th of a second
❹	Digital Title	WHT, RED, GRN, BLU, YEL, SKY, VIO	Digital title colours are displayed. For normal titles, abbreviated colour codes are displayed. Digital title colour selection: white, red, green, blue, yellow, sky blue, violet
		<WHT>	See-through colour (The same seven colours can be selected.)
		R. WHT	Reverse colour (The same seven colours can be selected.)
		<R. WHT>	Reverse see-through colour (The same seven colours can be selected.)
❺	Tape Speed	SP	Standard play
		LP	Long play
❻	Exposure	+ 0.5	Over exposure to the standard (+ 0.5, +1.0, +1.5, +2.0)
		−0.5	Under exposure to the standard (−0.5, −1.0, −1.5)
❼	Operation	PAUSE	Record pause
		REC	Recording
		PLAY	Normal playback, fast forward playback or rewind playback
		STILL	Still playback
		STOP	Stop
		FF	Fast forward or fast forward search
		REW	Rewind or rewind search
		EJECT	Eject function is operated
		EJECT (flashes)	Safety mechanism functions

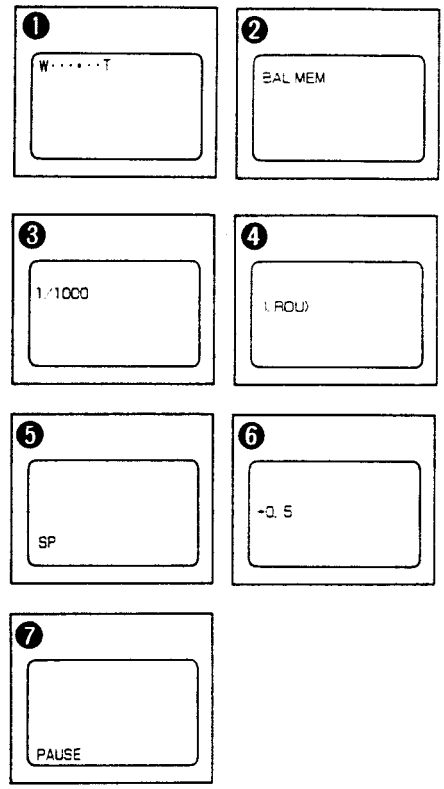


NO.	Mode	Display	Description
❽	Tape Counter	−9:59:59 to 9:59:59	Tape counter reading
❾	Tape Status	TAPE (flashes)	No cassette is loaded or an unrecordable cassette is loaded
		T. END	Tape reaches the end
❿	Battery Warning	BATT (flashes)	Battery charge is nearly exhausted
⓫	Condensation Warning	DEW (flashes)	Condensation is detected in camera
⓬	Lithium Battery Warning	DATE (flashes)	Lithium battery charge is low or no battery is inserted
⓭	Title	2 lines × 16 characters	Alphabet: A to Z Special characters and accents: Ä Ö Ü Ø Å Æ Ñ Ç Ë Numerals: 0 to 9 Symbols: , . / - ' " : ; ? ! ✱ &
⓮	Character Title Colour	WHT, RED, GRN, BLU, YEL, SKY, VIO	Character title colour codes are displayed. Character title colour selection: white, red, green, blue, yellow, sky blue, violet
⓯	Time	12:00 AM to 11:59 PM	Present time
⓰	Date	1. JAN. 1990 to 31. DEC. 2010	Current date
⓱	Timer Recording Menu	SELF SELF 30	Self timer recording menu
⓲	Timer Recording	0SEC—10SEC	Recording reminder
		10SEC—1SEC	Self timer countdown
		30SEC—1SEC	Self 30 recording
⓳	Focus mode	(Focus zone)	When AF or auto tracking focus mode is selected, the focus zone is displayed. In auto tracking focus mode, the ATF zone changes in size according to the focal depth of the subject.
		No display	The focus zone is not displayed in manual focus mode.



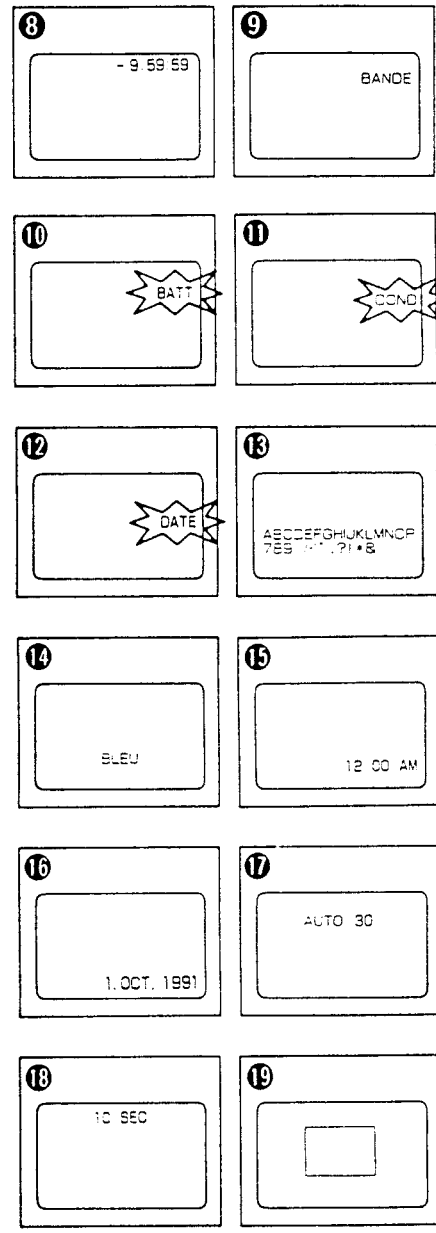
(2)F.PAL

Numéro de mode	Affichage	Description
❶ Position de l'objectif zoom	W···◆··T	◆Indique la focale approximative du zoom
	MACRO	Objectif réglé sur macro.
❷ Balance des blancs	Pas d'affichage	Balance automatique
	BAL MEM	Balance des blancs mémorisée
❸ Obturateur grande vitesse	Pas d'affichage	Vitesse normale d'obturation (1/50)
	1/500	1/500e de seconde
	1/1000	1/1000e de seconde
❹ Titrage digital	BLANC, ROUGE, VERT, BLEU, JAUNE, CIEL, VIO	Les couleurs du titrage digital sont affichées. Pour les titres normaux, des codes de couleur abrégés sont affichés. Sélection de la couleur du titrage digital: Blanc, rouge, vert, bleu, jaune, ciel, bleu, violet
	<BLA>	Couleur transparente (Ces Sept mêmes couleurs peuvent être sélectionnées)
	I. BLA	Couleur inversée (Ces sept mêmes couleurs peuvent être sélectionnées)
	<I. BLA>	Couleur inverse transparente (Ces sept mêmes couleurs peuvent être sélectionnées)
❺ Vitesse de bande	SP	Vitesse standard.
	LP	Vitesse lente
❻ Exposition	+0,5	Surexposition: (+0,5; +1,0; +1,5; +2,0)
	−0,5	Sous-exposition: (−0,5; −1,0; −1,5)
❼ Fonctionnement	PAUSE	Pause d'enregistrement
	ENR.	Enregistrement
	LECT.	Lecture normale, avance ou retour rapide
	ARRET.	Lecture arrêt sur image
	STOP	Arrêt
	AVAN.	Avance rapide ou recherche en avance rapide
	RET.	Retour ou recherche en retour
	EJECT	Fonction d'éjection en cours
	EJECT (clignote)	Déclenchement du mécanisme de sécurité



Numéro de mode	Affichage	Description
⑧ Compteur de bande	−9:59:59 à 9:59:59	Compteur
⑨ Etat de bande	BANDE (clignote)	Pas de cassette ou la cassette n'est pas enregistrable.
	BANDE	La bande est entièrement enregistrée.
⑩ Avertissement batterie	BATT (clignote)	La batterie est presque déchargée
⑪ Avertissement condensation	COND (clignote)	De la condensation est détectée dans le camescope
⑫ Avertissement de pile au lithium	DATE (clignote)	La charge de la pile au lithium est faible ou la pile n'est pas en place.
⑬ Titrage	2 lignes × 16 caractères	Alphabet: De A à Z Nombres: De 0 à 9 Symboles: , . / - ' " : ; ? ! * & Ç
⑭ Couleurs des caractères des titres	BLANC, ROUGE, VERT, BLEU, JAUNE, CIEL, VIO	Les codes couleurs des caractères des titres sont affichés. Sélection des couleurs des caractères des titres : Blanc, rouge, vert, bleu, jaune, ciel, bleu, violet
⑮ Heure	12: 00 AM (matin) à 11:59 PM (après-midi)	Heure
⑯ DATE	1. JAN. 1990 à 31. DEC. 2010	Date
⑰ Menu de retardateur	AUTO AUTO 30	Modes retardateur
⑱ Enregistrement de retardateur	0SEC−10SEC	Rappel d'enregistrement
	10SEC−1SEC	Compte à rebours retardateur
	30SEC−1SEC	Enregistrement automatique 30 secondes
⑲ Mode mise au point	(Zone de mise au point)	La zone de mise au point est affichée, lorsque le mode ATF* est sélectionné. En ATF, la zone de mise au point change de dimension en fonction de la profondeur de champ disponible.
	Pas d'affichage	La zone de mise au point n'est pas affichée en mode de mise au point manuelle.

* ATF = Auto Tracking Function
= AF à suivi automatique du sujet



1-6 A10 system

❶ VL-30 Battery Video Light
❷ VL-20 Battery Video Light
❸ MM-200 Stereo Mixing Microphone
❹ SA-1 Adapter Bracket
❺ WL-400 Wireless Controller
❻ SF-200 Sports Finder
❼ SS-300 Shoulder Strap
❽ WS-20 Wrist Strap
❾ BP-E77K, BP-E722 or BP-E718 Battery Pack
❿ CA-100 Compact Power Adapter
⓫ CB-110 Car Battery Adapter
⓬ DC-100 DC-Coupler
⓭ CA-E7 Compact Power Adapter
⓮ CB-E7 Car Battery Adapter
⓯ CR-E7K Charge Coupler
⓰ WD-37 Wide Converter
⓱ TL-37 Tele-converter
⓲ Filter Set FS-37
⓳ Filter Set FS-37U
⓴ HC-8 System Case
㉑ SC-800 Soft Carrying Case
㉒ RS-8 Rain Shield
㉓ Tripod
㉔ A10
㉕ 8mm Video Cassette
㉖ Aerial
㉗ RU-E3 RF Unit
㉘ Antenna Selector
㉙ TV
㉚ ST-250 Stereo Cable
㉛ C-150 AV Cable
㉜ PC-370ST Stereo SCART Cable
㉝ VTR
㉞ Transcodeur TC-E21

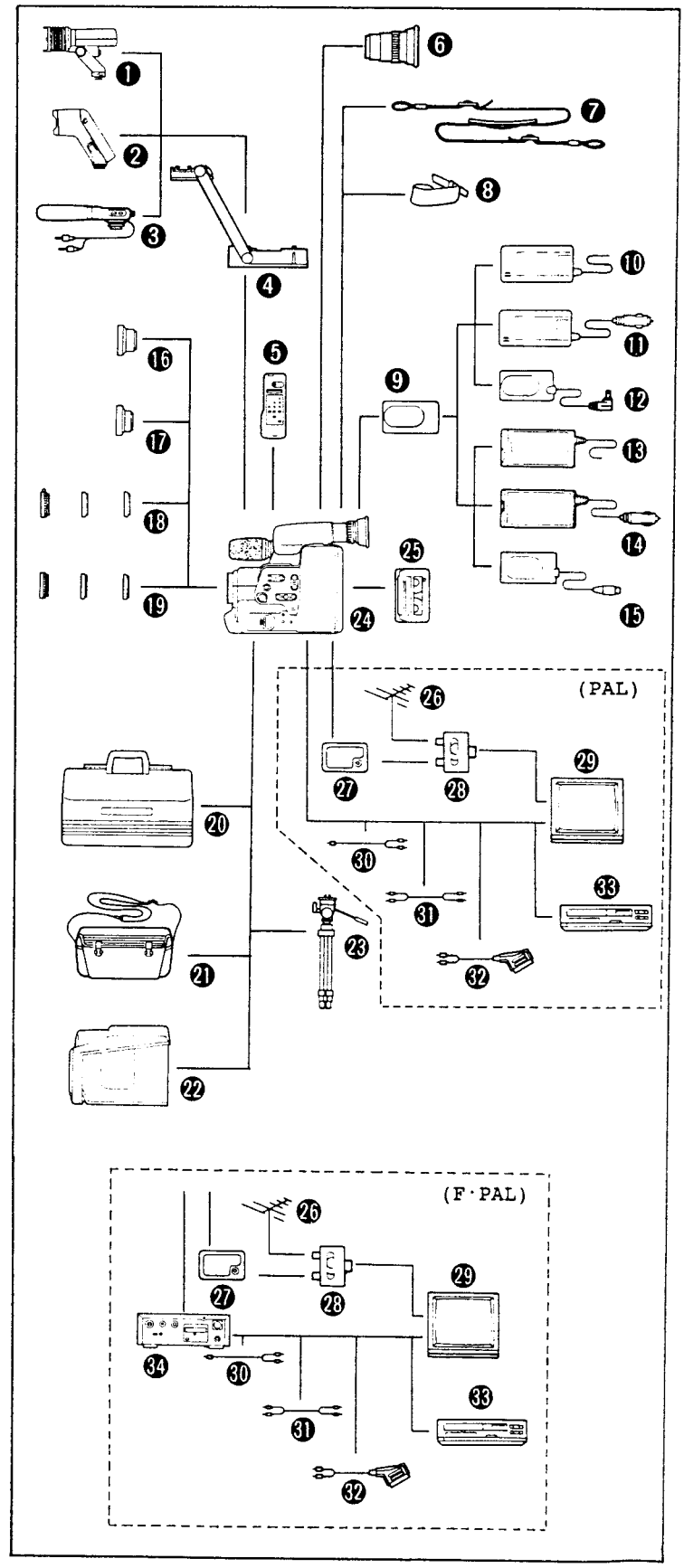


Fig. I-3

2. New Technologies

2-1 Lens section

2-1-1 Optical system

The Model A10 provides a highly enhanced lens power (1.5 times the conventional model) for its 8x zoom lens (by increasing the lens refractive index) and a more compact design. Its weight is further reduced by the use of lighter glass.
When the lens power is increased, a higher degree of aberration compensation and mechanical control accuracy becomes necessary. In terms of performance, however, this lens satisfies roughly the horizontal resolution of 400 TV lines.

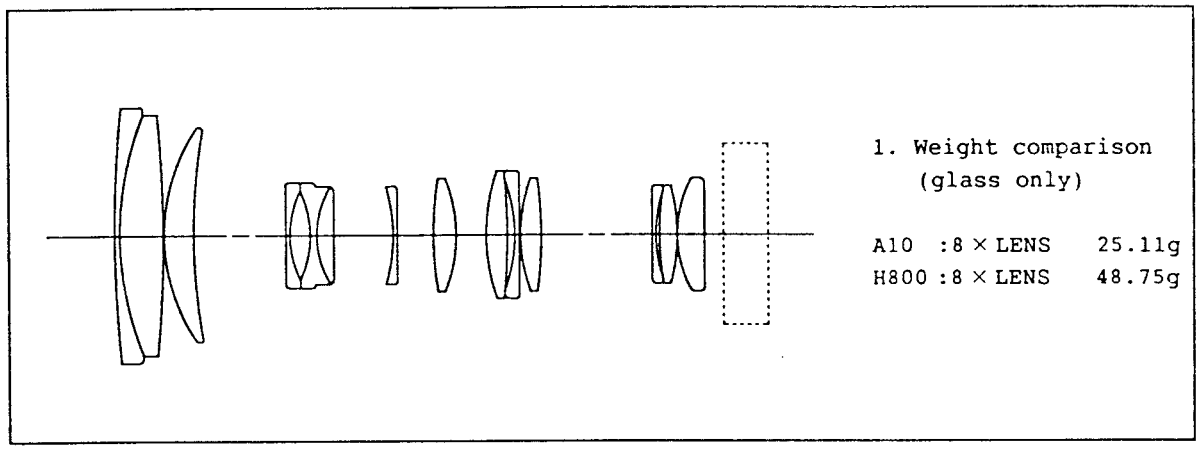


Fig. I-4

2-1-2 Wide macro AF

Pressing the macro button during AF operation enters the zoom lens at a full speed into a wide macro area. Then the AF operation is performed by zooming.
The zoom motor control is performed the same as focus motor control for normal AF. The zoom motor drive voltage is lowered since the focusing relative to the zoom shift is more sensitive in the wide macro area.
In manual focusing, pressing the power zoom button allows focusing in the wide macro.

2-2 Camera section

2-2-1 Exposure compensation

The A10 exposure compensation permits a preset automatic exposure (AE) value to be changed for more or less exposure. It is different from the manual iris in A1, etc. (This operation is performed with the exposure compensation button [+/-] on the camera front.)
This function enables the user to compensate for blackening (too much exposure) in the backlight condition or whitening (too little exposure) in the highlighted portion to his or her satisfaction.

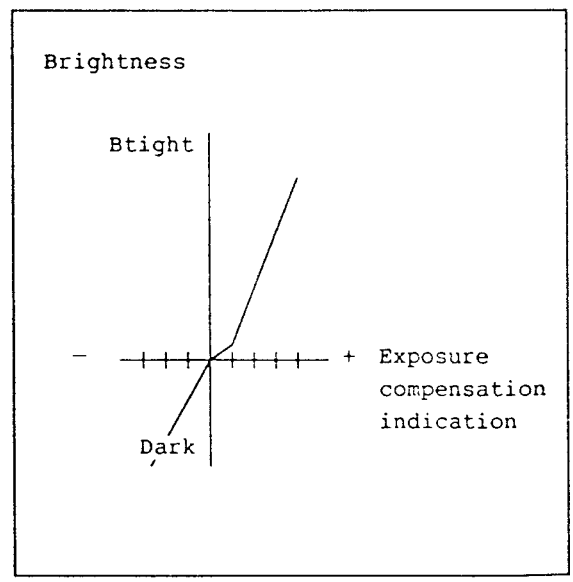


Fig. I-5

Fig. I-6 shows the AE system block diagram.

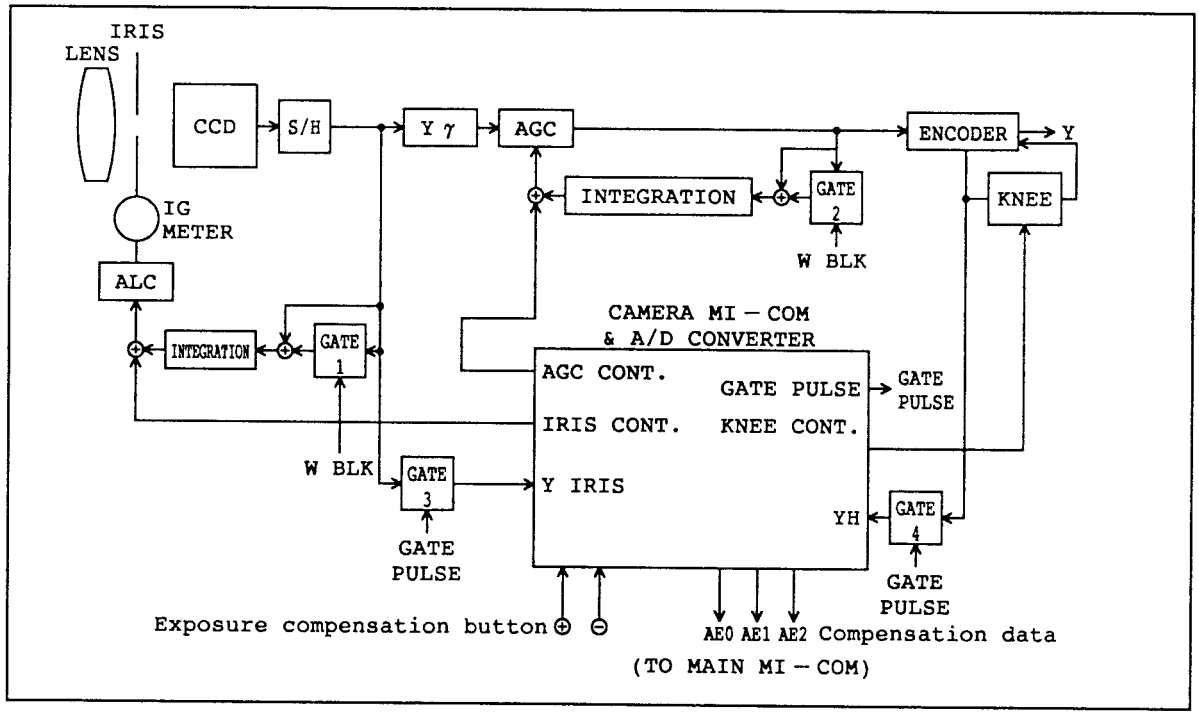


Fig. I-6

The AE system is the same as the E06 except that the previous application of BLC control voltage is replaced with external control (exposure compensation button [+/-]). When the exposure compensation button is pressed, the camera microcomputer changes AGC CONT., IRIS CONT. accordingly for a new exposure value. This exposure compensation information (AE0, 1, 2) is sent to the main microcomputer for display on the viewfinder screen.

(1) AE operation

○Iris control
The video signal after S/H is put to the center-weighted average light measurement, mixed with IRIS CONT. from the camera microcomputer, and sent to the ALC circuit. IRIS CONT. changes during BLC and exposure compensation operation.

○AGC control
The video signal after AGC is put to the center-weighted average light measurement, mixed with AGC CONT. from the camera microcomputer, and sent to the AGC circuit. AGC CONT. changes during BLC and exposure compensation operation.
The conventional auto-iris and "AGC adjust VR" are incorporated into the microcomputer. An adjusted voltage is normally output from the AGC CONT. and IRIS CONT. terminals.

○Knee control
The video signal from the encoder is split into 25 areas by gate pulses and input to the camera microcomputer. The camera microcomputer controls KNEE CONT. if the input signal (YH) has too much high-brightness portion.

○Auto BLC
The video signal after S/H is split into 25 areas by gate pulses and input to the camera microcomputer. The camera microcomputer compares the brightness levels of each area of the input signal (Y IRIS) and controls AGC CONT. and IRIS CONT. if it decides a backlight condition is set.

3. Circuit Description

3-1 Lens section

3-1-1 Auto focus system

The A10 AF system uses the same fuzzy AF as the H800's. A new feature is a control of the zoom motor instead of the AF motor in wide macro AF.

3-1-2 Digital IC (IC2406) pin functions

Pin no.	Signal designation	I/O	Function
1 8	AD7 AD0	I/O	Parallel communication bus with the AF microcomputer. Addresses and data are multiplexed.
9	ADDRESS READ	I	Input pin for setting in an internal latch the address input to pins 1 to 8. The address is read at the rising edge of "H" pulse and held at the falling edge.
10	DATA WRITE	I	Input pin for setting in an internal latch the data input to pins 1 to 8. The data is written at the rising edge of the "L" pulse.
11	DATA READ	I	Input pin for reading data from pins 1 to 8. The data can be read at the rising edge of the "L" pulse.
12 18	NC	–	OPEN
19	CU PEAK	I	Input pin for a CU value peak position signal. When a pulse is input to the CU PEAK pin in the AF area, the corresponding address is stored in memory.
20	ES PEAK	I	Input pin for an ES value peak position signal. When a pulse is input to the ES PEAK pin in the AF area, the corresponding address is stored in memory.
21 25	NC	–	OPEN
26	AF GATE PULSE	O	A pulse for gating the AF metering area.
27	NC	–	OPEN
28	VDD	I	Connected to CAMERA 5V.
29	V CLR	O	V clear signal. An "H" pulse is output during V blanking.
30	SP	O	Sampling pulse. An "L" pulse is output during V blanking.

Table I-2 (1/2)

<table>
<tr><th>Pin no.</th><th>Signal designation</th><th>I/O</th><th>Function</th></tr>
<tr><td>31
32</td><td>SEL A
SEL B</td><td>O</td><td>Gain switching signal for the CU signal input section BPF. And "H" pulse is output for each 3V.
<table>
<tr><th>BPF / Signal</th><th>7.5x</th><th>15x</th><th>29.5x</th></tr>
<tr><td>SEL A</td><td>0</td><td>0</td><td>1</td></tr>
<tr><td>SEL B</td><td>0</td><td>1</td><td>0</td></tr>
</table>
* SELA and B have a different phase.</td></tr>
<tr><td>33
35</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>36</td><td>NTSC Ⓗ/PAL Ⓛ</td><td>I</td><td>Input pin for switching NTSC and PAL. "H" for NTSC and "L" for PAL.</td></tr>
<tr><td>37</td><td>HD</td><td>I</td><td>Horizontal sync signal input</td></tr>
<tr><td>38</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>39</td><td>CLOCK</td><td>I</td><td>Clock signal input pin</td></tr>
<tr><td>40</td><td>–</td><td>–</td><td>Connected to GND.</td></tr>
<tr><td>41</td><td>VD</td><td>I</td><td>Vertical sync signal input pin</td></tr>
<tr><td>42</td><td>GND</td><td>–</td><td>Connected to GND.</td></tr>
<tr><td>43</td><td>AF FRAME</td><td>O</td><td>Auto focus area display signal</td></tr>
<tr><td>44</td><td>INTERRUPT</td><td>O</td><td>Output pin for a parallel communication interrupt signal to the microcomputer</td></tr>
</table>

Table I-2 (2/2)

3-1-3 AF microcomputer (IC2402) pin functions

Pin no.	Signal designation	I/O	Function
1 2	NC	–	OPEN
3	MSW2	I	AF motor speed adjust pin. Normally "L". Slow when "H". (Motor drive voltage changes from 4V to 3.8V.)
4 11	AD7 AD0	I/O	Parallel communication bus with the digital IC. The address and data are multiplexed.
12	DATA WRITE	O	Output pin for writing data output from pins 4 to 11 into the digital IC. The data is written at the rising edge of "L" pulse.
13	DATA READ	O	Output pin for reading data from pins 1 to 8 of the digital IC. The data can be read at the rising edge of "L" pulse.

Table I-3 (1/4)

<table>
<tr><th>Pin no.</th><th>Signal designation</th><th>I/O</th><th>Function</th></tr>
<tr><td>14</td><td>ADDRESS READ</td><td>O</td><td>Output pin for reading the address output from pins 4 to 11 into the digital IC. The address is read at the rising edge of "H" pulse and held at the falling edge.</td></tr>
<tr><td>15</td><td>AF FRAM ON ⊕</td><td>O</td><td>Auto focus area display control. Display when "H".</td></tr>
<tr><td>16
17</td><td>MSW1
MSW0</td><td>I</td><td>AF motor speed adjust pins
<table>
<tr><th rowspan="2">Control / Signal</th><th colspan="2">Decrease speed</th><th rowspan="2">Normal</th><th>Increase speed</th></tr>
<tr><th>Drive voltage</th><th>Shorter pulse ON</th><th>Longer pulse ON</th></tr>
<tr><td>MSW0</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>MSW1</td><td>H</td><td>L</td><td>L</td><td>H</td></tr>
</table></td></tr>
<tr><td>18</td><td>STB</td><td>I</td><td>Input pin for a serial communication interrupt (for plant adjustment)</td></tr>
<tr><td>19</td><td>INTERRUPT</td><td>I</td><td>Trigger input for microcomputer operation. Two pulses are input in every 1V.</td></tr>
<tr><td>20
24</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>25</td><td>GND</td><td>–</td><td>Connected to GND.</td></tr>
<tr><td>26</td><td>RESET Ⓛ</td><td>I</td><td>Reset input pin. Reset when "L".</td></tr>
<tr><td>27</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>28</td><td>X IN</td><td>I</td><td rowspan="2">Pin connecting 10 MHz crystal</td></tr>
<tr><td>29</td><td>X OUT</td><td>O</td></tr>
<tr><td>30
31</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>32</td><td>GND</td><td>–</td><td>Connected to GND.</td></tr>
<tr><td>33</td><td>ZOOM SPEED HIGH Ⓛ</td><td>I</td><td>Zoom speed switching input pin. Slow when "H" and fast when "L".</td></tr>
<tr><td>34</td><td>MACRO ⊕</td><td>I</td><td>AF mode switching input pin. Wide macro AF mode when "H" and normal when "L".</td></tr>
<tr><td>35</td><td>DATA SW</td><td>I</td><td>For plant adjustment</td></tr>
<tr><td>36</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>37
38</td><td>AF MODE 1
AF MODE 2</td><td>I</td><td>AF mode switching input pins
<table>
<tr><th>MODE / Signal</th><th>AF</th><th>ATF</th><th>MANUAL</th></tr>
<tr><td>AF MODE 1</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>AF MODE 2</td><td>L</td><td>H</td><td>L</td></tr>
</table></td></tr>
</table>

Table I-3 (2/4)

<table>
<tr><th>Pin no.</th><th>Signal designation</th><th>I/O</th><th>Function</th></tr>
<tr><td>39
40</td><td>WIDE
TELE</td><td>I</td><td>Zoom motor drive derection input pins
<table>
<tr><th>Signal \ Direction</th><th>WIDE</th><th>TELE</th><th>STOP</th></tr>
<tr><td>WIDE</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>TELE</td><td>L</td><td>H</td><td>L</td></tr>
</table></td></tr>
<tr><td>41</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>42</td><td>WIDE⊕</td><td>O</td><td>Zoom motor wide side drive signal</td><td rowspan="2">PWM output signal for wide macro AF.</td></tr>
<tr><td>43</td><td>TELE⊕</td><td>O</td><td>Zoom motor telephoto side drive signal</td></tr>
<tr><td>44
45
46</td><td>ZOOM 0
ZOOM 1
ZOOM 2</td><td>O</td><td>Zoom position output pins. Same as pins 55 to 57.</td></tr>
<tr><td>47</td><td>TEST</td><td>I</td><td>For plant check</td></tr>
<tr><td>48</td><td>AF FAR</td><td>O</td><td>AF motor near side drive signal. PWM output signal.</td></tr>
<tr><td>49</td><td>AF NEAR</td><td>O</td><td>AF motor infinity side drive signal. PWM output signal.</td></tr>
<tr><td>50</td><td>LENS CAP⊕</td><td>I</td><td>Lens cap detection input pin. AF operation stops when "H".</td></tr>
<tr><td>51</td><td>LED CONT.</td><td>O</td><td>Control signal for LED of photo reflector for focus and zoom position detection. LED ON when "H", and OFF when "L".</td></tr>
<tr><td>52
53</td><td>FOCUS 1
FOCUS 0</td><td>I</td><td>Input pins for photo reflector signal for focus position detection
<table>
<tr><th>Signal \ Zoom</th><th>0.6m</th><th>0.6~
1.1mm</th><th>1.1mm
∞</th><th>∞</th></tr>
<tr><td>FOCUS 0</td><td>H</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>FOCUS 1</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>54</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>55
56
57</td><td>ZOOM 0
ZOOM 1
ZOOM 2</td><td>I</td><td>Input pins for a photo reflector signal for zoom position detection
<table>
<tr><th>Signal \ Zoom</th><th>68mm
58mm</th><th>58mm
40mm</th><th>40mm
28mm</th><th>28mm
20mm</th><th>20mm
14mm</th><th>14mm
18mm</th><th>Wide macro</th><th>End of wide macro</th></tr>
<tr><td>ZOOM 0</td><td>H</td><td>H</td><td>L</td><td>L</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>ZOOM 1</td><td>H</td><td>L</td><td>L</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>ZOOM 2</td><td>H</td><td>H</td><td>H</td><td>H</td><td>L</td><td>L</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>58
59</td><td>NC</td><td>–</td><td>Connected to GND</td></tr>
</table>

Table I-3 (3/4)

Pin no.	Signal designation	I/O	Function
60	IRIS POSITION	I	Input pin for iris position detection signal. 2.8V when OPEN and 0.8V when CLOSE.
61	ES	I	ES value input pin
62	CU	I	CU value input pin
63 65	–	–	Connected to GND
66	ZOOM SPEED REF.	O	Zoom motor speed reference voltage output pin
67	AF SPEED REF.	O	AF motor speed reference voltage output pin
68	DA VREF.	I	3.6V reference voltage input pins
69	AD VREF.		
70	GND	–	Connected to GND
71 72	VCC		Connected to CAMERA 5V.
73	GND	–	Connected to GND
74	AF CS	I	Serial communication lines for plant adjustment
75	AF CLOCK	O	
76	DATA OUT	O	
77	DATA IN	I	
78	NC	–	OPEN
79	NTSCⒽ/PALⓁ	I	Input pin for NTSC and PAL selected. NTSC when "H", and PAL when "L".
80	NC	–	OPEN

Table I-3 (4/4)

3-2 Camera section

The signal system of the camera section is basically equivalent to that of the model E30. Its details are not therefore explained here. The circuit around the camera microcomputer is also based on that for the E640. Only the newly added D/A converter is explained.
Consequently, this section describes the power circuit, the camera microcomputer (IC2303) pins, and the D/A converter(IC2308).

3-2-1 Power circuit

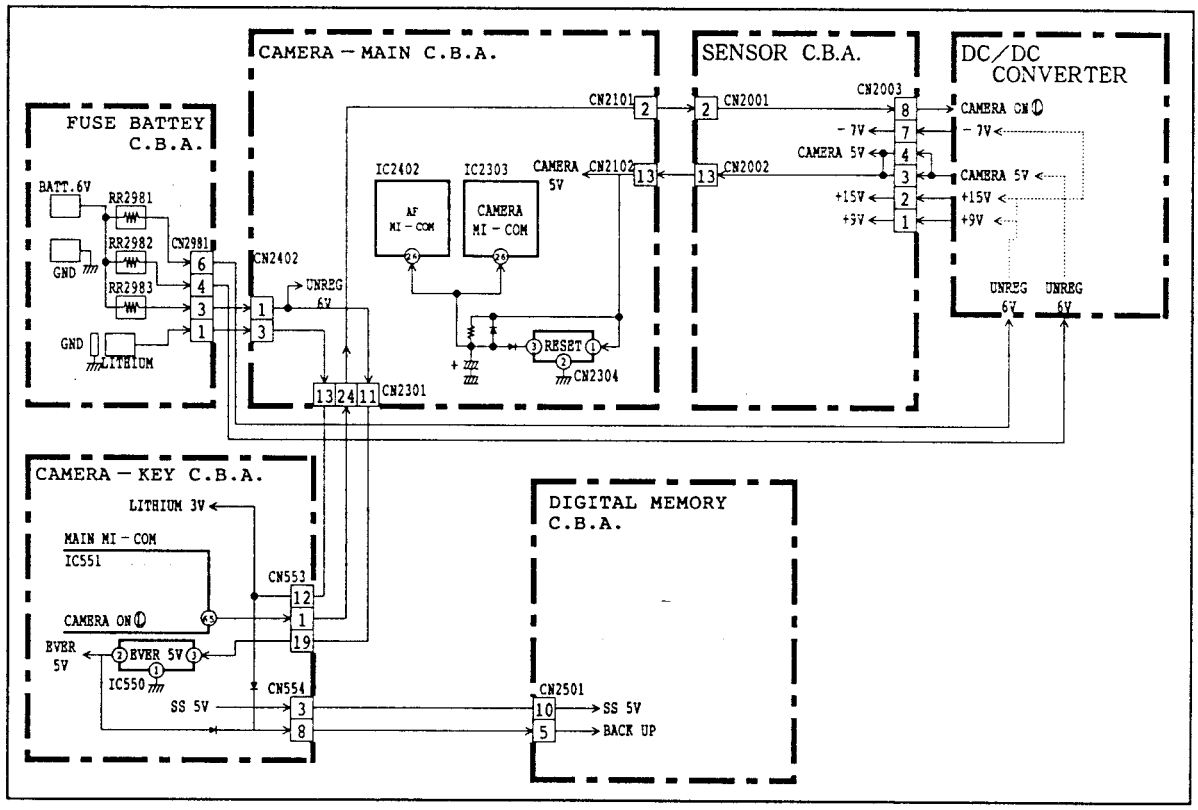


Fig. I-7

Kinds of power source

Fig. I-7 shows the system diagram of the power circuit of the camera section. The power types and roles are explained below.

○ UNREG 6V
Power supplied from the FUSE BATTERY C.B.A. to the camera section is divided into three lines. One is connected to the CAMERA-MAIN C.B.A. to power the motors and to the CAMERA-KEY C.B.A. as EVER 5V. Of the other two lines that enter the DC/DC converter, one becomes CAMERA 5V and the other supplies +15V, +9V, and -7V.

○ CAMERA 5V (+15V, +9V, -7V)
CAMERA 5V, main power of the camera section, is generated by the DC/DC converter based on UNREG 6V.
The DC/DC converter is turned ON by the CAMERA ON ① signal output from pin 65 of the main microcomputer (IC551) and outputs CAMERA 5V as well as CCD driving +15V, +9V, and -7V.

○ SS 5V
SS 5V sent from the RECORDER-MAIN C.B.A. is used to power the CAMERA-KEY and the DIGITAL MEMORY C.B.A..

○ LITHIUM 3V
Power for S-RAM in the digital memory circuit and for the main microcomputer. EVER 5V is supplied when the power supply is connected to the battery terminals.

○ EVER 5V
EVER 5V created at the CAMERA-KEY C.B.A. can be supplied if the power supply is connected to the battery terminals. This is used to power the main microcomputer as well as the character generator and the digital memory circuit.

3-2-2 Explanation of camera microcomputer (IC2303) pin functions

Pin no.	Signal designation	I/O	Function
1 2	NC	–	OPEN
3	LENS CAP Ⓗ	O	Lens cap detection output pin. Detection from the video signal. "H" when detected.
4 5 6	AE0 AE1 AE2	O	Exposure compensation data output pin. See Table I-5.
7	NC	–	OPEN
8 9 10 11	D3 D2 D1 D0	O	Adjustment status in the microcomputer adjust mode. Camera unit status output.
12	GATE PULSE	O	Screen splitting (into 25 areas), multi-pattern photometric gate pulse
13	FADE Ⓗ	I	Fade control signal from the main microcomputer (IC551)
14	SAMPLE FADE Ⓗ	I	Forces an unimposed back scene to fade into white level to make it easier to decide the level at which a digital title has been read in the digital title read level variable mode.
15	EXPOSURE +SW Ⓗ	I	Exposure compensation + button input. "H" when the button is pressed.
16	EXPOSURE – SW Ⓗ	I	Exposure compensation - button input. "H" when the button is pressed.
17 18 19	VD VD CP2	I	Pulse generation sync signal input
20 24	NC	–	OPEN
25	Vss	–	Connected to GND.
26	RESET Ⓛ	I	Microcomputer reset input. Reset in the "L" period started up after CAMERA 5V.
27	NC	–	OPEN
28	X IN	I	Connected to 10 MHz crystal.
29	X OUT	O	
30 31	NC	–	OPEN

Table I-4 (1/3)

Pin no.	Signal designation	I/O	Function
32	Vss	–	Connected to GND.
33 39	NC	–	OPEN
40	AWB SPEED	I	Used for plant adjustment. Speed increased when "H".
41	NC	–	OPEN
42	NTSC Ⓛ/PAL Ⓗ	I	NTSC when "L" and PAL when "H".
43	FAWB Ⓗ	I	AWB circuit control communication input.
44 45	EVR DOWN EVR UP	I	Microcomputer adjust switch connecting pin
46	EVR SELECT	I	Pin for connecting the channel switch for microcomputer adjustment
47	DATA SET	I	Pin for connecting the data read switch for microcomputer adjustment
48	MODE SELECT	I	Pin for connecting the step shift switch for microcomputer adjustment
49	ADJ. MODE	I	Pin for connecting the camera adjust mode switch. Adjust mode when "H" and normal mode when "L".
50 53	NC	–	OPEN
54 56	–	–	Connected to GND.
57	FL RESET	O	Flicker detection circuit S/H reset pulse
58	V REF.	I	Reference voltage input (+1.8V)
59	AGC V	I	AGC control voltage input
60	IRIS POSITION	I	Iris position detection signal input
61	Y FL	I	Flicker detection signal input
62	Y IRIS	I	BLC control Y IRIS input
63	Y AGC	I	Auto knee control Y AGC input
64	B – Y	I	AWB B-Y signal input
65	R – Y	I	AWB R-Y signal input
66	V – FADE	O	Video fade control output
67	FL COMP.	O	Flicker compensation signal output
68	V REF(D/A)	I	D/A conversion reference voltage input
69	V REF(A/D)	I	A/D conversion reference voltage input
70	Vss	–	Connected to GND.
71 72	Vcc	I	Connected to CAMERA 5V.

Table I-4 (2/3)

Pin no.	Signal designation	I/O	Function
73	Vss	–	Connected to GND
74	E²PROM – CS	O	Chip select for serial data communication with E²PROM (IC2302). Communication performed while "H".
75	CLOCK	O	Clock output for serial data communication with E²PROM (IC2302) and D/A converter (IC2308)
76	DATA OUT	O	Data output for serial data communication with E²PROM (IC2302) and D/A converter (IC2308)
77	DATA IN	I	Data input for serial data communication with E²PROM (IC2302)
78	A – FADE	O	Audio fade control output
79	LDP	O	Load pulse signal output for serial data communication with D/A converter (IC2308). When "H", the D/A converter operates in following the previous 12-bit data input.
80	NC	–	OPEN

Table I-4 (3/3)

Exposure compensation data (to main microcomputer)

Exposure compensation (EVF indication)	AE0	AE1	AE2
+2.0	H	H	H
+1.5	H	H	L
+1.0	H	L	H
+0.5	H	L	L
0 (no indication)	L	H	H
– 0.5	L	H	L
– 1.0	L	L	H
– 1.5	L	L	L

Table I-5

3-2-3 D/A converter (IC2308)

The camera microcomputer sends serial data to the D/A converter, causing it to output various control voltages.
This communication line is the same as for the E²PROM.
When the 15-pin LDP goes to "H", the D/A converter outputs control voltages from various pins according to the previous 12-bit data input.

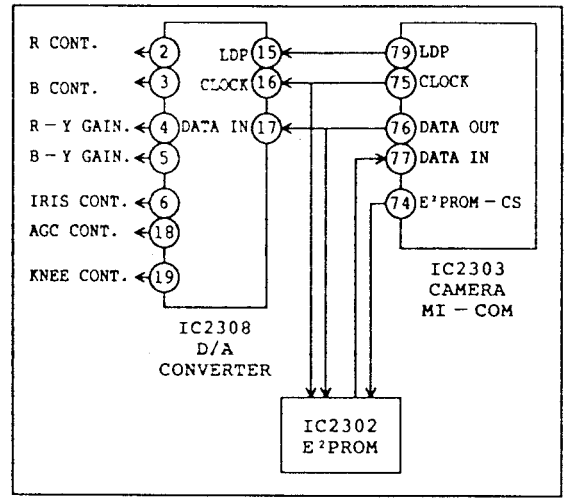


Fig. I-8

3-3 Recorder circuit operation

The recorder section basically has an equivalent circuit configuration to that of the Model E6. Explained below is the system control circuit which slightly differs from its counterpart in the E6.

3-3-1 System control circuit

The system control operations are generally performed by the main microcomputer (IC551) and the servo microcomputer (IC501). The control key inputs and serial communication control are handled by the main microcomputer, and the mechanism servo control by the servo microcomputer.

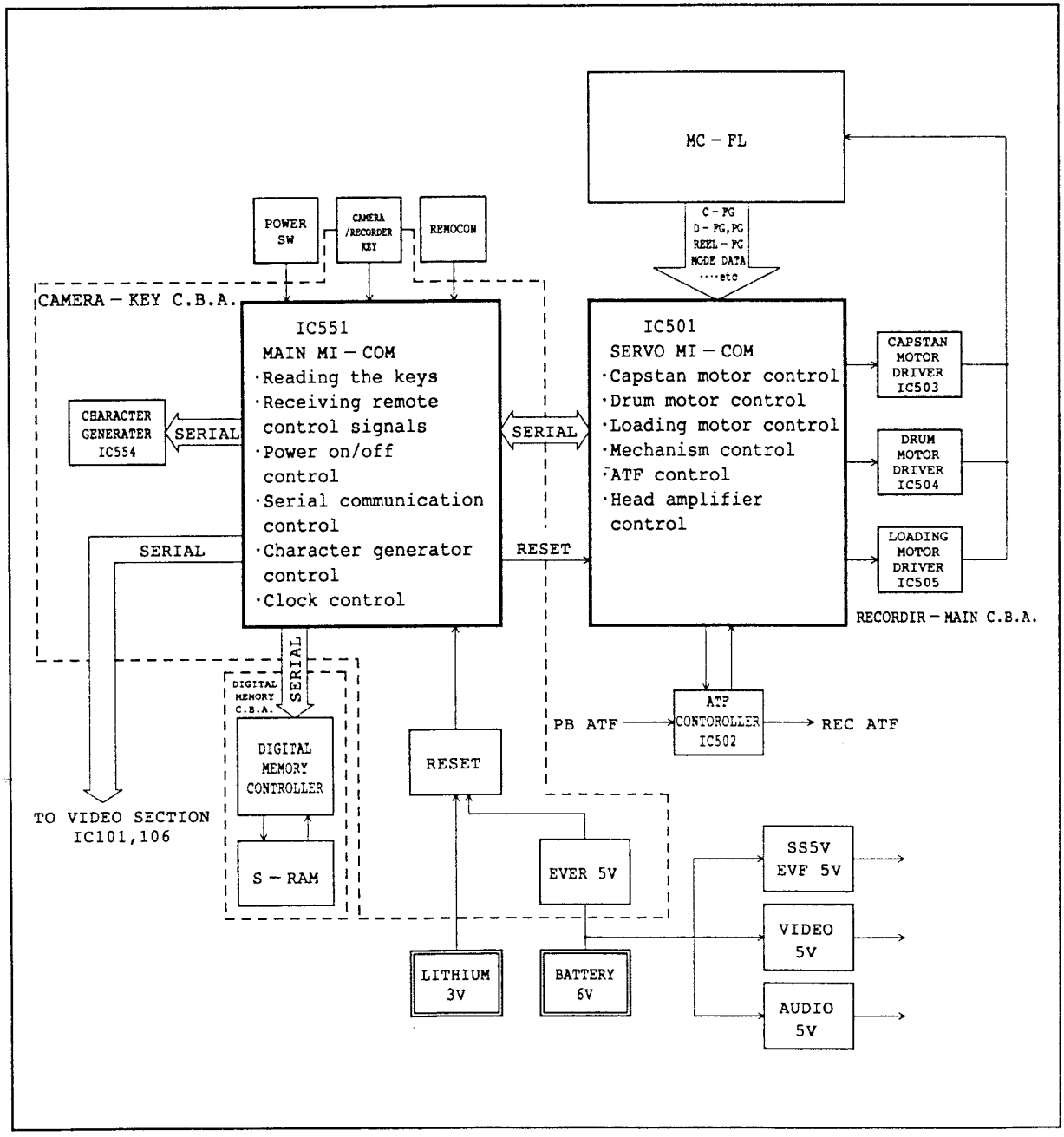
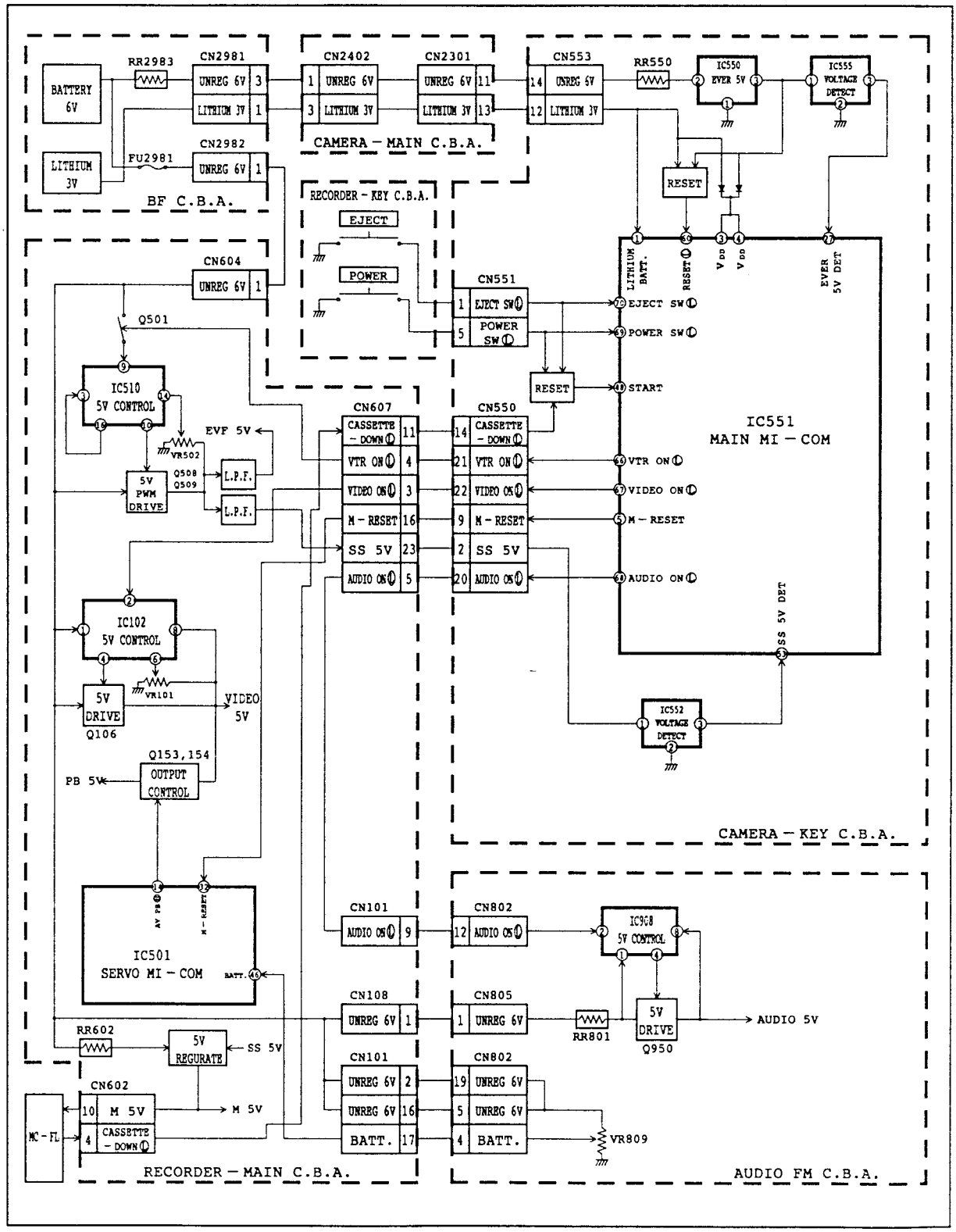


Fig. I-9

3-3-2 Power supply circuit



① Kinds of power sources

Power for the recorder section is generated using UNREG 6V supplied from the battery or AC adapter. LITHIUM 3V of the lithium battery is supplied as backup power to the clock, title, and calendar functions of the main microcomputer.

EVER 5V
Power connected to the battery terminal is converted to 5V by the three-terminal regulator (IC550) on the C-KEY C.B.A. The 5V output is constantly delivered as main microcomputer power as long as the power supply is connected.

SS 5V EVF 5V
When the POWER switch is turned on, pin 66 of IC551 (MAIN MI-COM) outputs the VTR ON Ⓛ signal which activates the switching regulator circuit on the R-MAIN C.B.A. The REGULATE 5V of regulator output passes through each LPF to be supplied as SS 5V and EVF 5V to the respective circuits.

VIDEO 5V PB 5V
Pin 67 of IC551 (MAIN MI-COM) outputs the VIDEO ON Ⓛ signal which activates the regulating circuit consisting mainly of IC102 on the R-MAIN C.B.A. VIDEO 5V is constantly output as long as power is ON, but PB 5V is supplied only during playback by the AV PB (H) signal output from pin 14 of IC501 (SERVO MI-COM).

AUDIO 5V
Pin 68 of IC551 (MAIN MI-COM) outputs the AUDIO ON Ⓛ signal which activates the regulating circuit consisting mainly of IC908 on the A-FM C.B.A. AUDIO 5V is supplied as audio circuit power.

MOTOR 5V
Supplied as loading motor and mechanism sensor power. The constant voltage source circuit consisting of IC506, Q616, 617 converts UNREG 6V into MOTOR 5V.

LITHIUM 3V
LITHIUM 3V supplied from the lithium battery is used as data backup power for IC551(MAIN MI-COM)when the 6V power supply is disconnected. EVER 5V is furnished to IC551 when the 6V power is connected.

② Power-on sequence

When power is connected to the battery terminal, EVER 5V is supplied as main microcomputer (IC551) power (VDD) from IC550 on the C-KEY C.B.A. Here, the main microcomputer communicates with the servo micro-computer (IC501) to check the mechanism position and moving the mechanism to a required position take place. In-this operation, the main microcomputer outputs VTR ON Ⓛ at pin 66 and starts up the SS 5V power to activate the servo microcomputer which moves the mechanism to the required position.
After a series of mechanism check operations, the main microcomputer enters the standby mode, waiting for input of the START signal at pin 48.
When power is on, the START signal is input to pin 48 to reactivate the main microcomputer. It then reads the POWER SW Ⓛ signal from input pin 69 and outputs each power control signal for output of power matching the mode.

3-3-3 Main microcomputer (IC551) pin functions

<table>
<tr><th>Pin no.</th><th>Signal designation</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>LITHIUM BATT</td><td>I</td><td>Input of lithium battery terminal voltage (A/D input pin). The microcomputer decides a low voltage condition when the voltage level drops to about 2.7V and causes the "DATE" indication on the viewfinder screen to blink.</td></tr>
<tr><td>2</td><td>ADREF</td><td>I</td><td>A/D conversion reference voltage input. Connected with EVER 5V and LITHIUM 3V.</td></tr>
<tr><td>3
4</td><td>VDD</td><td>I</td><td>Microcomputer power pins. Connected with EVER 5V and LITHIUM 3V.</td></tr>
<tr><td>5</td><td>M – RESET</td><td>O</td><td>Servo microcomputer reset signal output</td></tr>
<tr><td>6</td><td>ZOOM SPEED</td><td>O</td><td>Zoom speed switching control signal output. This signal goes high at high speed and low at low speed.</td></tr>
<tr><td>7</td><td>WIDE</td><td rowspan="2">O</td><td rowspan="2">Zoom direction control signal output
<table><tr><th></th><th>STOP</th><th>TELE</th><th>WIDE</th></tr><tr><td>Pin 7</td><td>H</td><td>L</td><td>H</td></tr><tr><td>Pin 8</td><td>H</td><td>H</td><td>L</td></tr></table></td></tr>
<tr><td>8</td><td>TELE</td></tr>
<tr><td>9</td><td>MACRO Ⓗ</td><td>O</td><td>Macro mode switching control signal output. The signal is sent to the AF microcomputer when the macro SW is pressed.</td></tr>
<tr><td>10</td><td>FADE Ⓗ</td><td>O</td><td>"H" at fade time</td></tr>
<tr><td>11</td><td>SHUTTER 01</td><td rowspan="2">O</td><td rowspan="2">Shutter speed switching output
<table><tr><th></th><th>Normal</th><th>1/500</th><th>1/1000</th></tr><tr><td>SHUTTER 01</td><td>L</td><td>L</td><td>H</td></tr><tr><td>SHUTTER 02</td><td>L</td><td>H</td><td>L</td></tr></table></td></tr>
<tr><td>12</td><td>SHUTTER 02</td></tr>
<tr><td>13</td><td>S.LEVEL4</td><td>O</td><td rowspan="4">Output for varying the digital memory threshold level.</td></tr>
<tr><td>14</td><td>S.LEVEL3</td><td>O</td></tr>
<tr><td>15</td><td>S.LEVEL2</td><td>O</td></tr>
<tr><td>16</td><td>S.LEVEL1</td><td>O</td></tr>
<tr><td>17</td><td>TEST2</td><td>I</td><td>Not used.</td></tr>
<tr><td>18</td><td>CGD – DATA OUT</td><td>O</td><td>Serial data output for character generator digital memory</td></tr>
<tr><td>19</td><td>CLOCK2</td><td>O</td><td>Clock output for character generator digital memory</td></tr>
<tr><td>20</td><td>DM – CS</td><td>O</td><td>Digital memory data select signal output</td></tr>
<tr><td>21</td><td>S – RAM CS</td><td>O</td><td>This signal goes high when the digital memory is displayed.</td></tr>
<tr><td>22</td><td>CG – STROBE1</td><td>O</td><td>Strobe signal for color title</td></tr>
</table>

Table I-6(1)

Pin no.	Signal designation	I/O	Function
23	SAMPLE FADE Ⓗ	O	Fade control signal for checking the digital memory read level
24	WB LOCK Ⓛ	O	This signal goes low when the white balance is locked.
25	SEE THROUGH Ⓗ	O	This signal goes high at "see-through" (When displayed digital title)time.
26	DISPLAY ON Ⓛ	O	On-screen display ON/OFF control signal
27	EVER 5V DET	I	Triggered shut-off detection signal input when voltage is insufficient
28	NC	–	OPEN
29	TEST1	I	Not used.
30	ZOOM 2	I	Photo reflector detection signal input for zoom position indication
31	ZOOM 1		
32	ZOOM 0		
33	GND	–	Connected to GND.
34	MP Ⓗ/ME Ⓛ	O	Tape kind discrimination output
35	A – MUTE Ⓗ	O	Audio mute control signal
36	AF MODE 1	O	AF mode switching control signal output
37	AF MODE 2		
38	AE2	O	Exposure compensation data input pins
39	AE1		
40	AE0		
41	EVER 5V	I	Connected to EVER 5V
42	T OUT	O	2.048 kHz output
43	MAIN – CS	O	Serial communication select signal output
44	V – STROBE	O	Video data serial communication discrimination signal
45	LINE IN Ⓛ	O	Line/camera switching signal."H" only.
46	YEAR	I	Auto date initial value input. ("L" --> 1990; "H" --> 1991)
47	SYSTEM S	I	Communication timing pulse from the servo microcomputer
48	START	I	Input for releasing the microcomputer from standby status
49	REMOCON	I	Input pin for code sent from the remote controller
50	S – DATA IN	I	Serial data input
51	S – DATA OUT	O	Serial data output
52	CLOCK1	O	Serial clock output
53	SS 5V DET	I	SS 5V output check pin

Table I-6(2)

Pin no.	Signal designation	I/O	Function
54	GND	–	Connected to GND.
55	XT1	I	Pin for connecting 32 kHz oscillation for auto date
56	XT2	I	
57	GND	–	Connected to GND.
58	X1	I	Pin for main clock oscillation. Connected to 4.19 MHz crystal.
59	X2	I	
60	RESET Ⓛ	I	Microcomputer reset signal input. The micro computer is reset when this signal goes low.
61	CG – STROBE2	O	Signal output for selecting character generator data for EVF indication
62	TALLY	O	This signal goes high when the tally lights up.
63	CAMERA LED	O	This signal goes high when the camera LED lights up.
64	VTR LED	O	This signal goes high when the VTR LED lights up.
65	CAMERA ON Ⓛ	O	Camera power ON/OFF control signal output
66	VTR ON Ⓛ	O	SS 5V and EVF 5V generator circuit ON/OFF control signal output
67	VIDEO ON Ⓛ	O	VIDEO 5V generator circuit ON/OFF control signal output
68	AUDIO ON Ⓛ	O	AUDIO 5V generator circuit ON/OFF control signal output
69	POWER SW Ⓛ	I	Power switch input. This signal goes low when the switch is pressed.
70	EJECT SW Ⓛ	I	Eject switch input. This signal goes low when the switch is pressed.
71	+ SW Ⓛ	I	+ switch input. This signal goes low when the switch is pressed.
72	– SW Ⓛ	I	- switch input. This signal goes low when the switch is pressed.
73	GND	–	Connected to GND.
74	TEST KEY	I	Not used.
75	SW POINT ADJ	I	Switching point adjustment input. An A/D input pin.
76	SELECT	I	select input pin for TV systems TV systems: JAPAN / USA / PAL / F·PAL Voltage at pin 76: 1.8V / 0V / 4.2V / 3V
77	KEY1	I	Camera and recorder key input pins. Keys are identified by the input voltage.
78	KEY2	I	
79	WIDE SW Ⓛ	I	Zoom wide switch input. This signal goes low when the switch is pressed.
80	TELE SW Ⓛ	I	Zoom telescopic switch input. This signal goes high when the switch is pressed.

Table I-6(3)

3-3-4 Servo microcomputer(IC501)Pin functions

<table>
<tr><th>Pin no.</th><th>Signal designation</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>SEL.1</td><td rowspan="2">O</td><td rowspan="2">Signal for controlling ATF PILOT signal frequency switching
<table>
<tr><td>ATF PILOT</td><td>f1</td><td>f2</td><td>f3</td><td>f4</td></tr>
<tr><td>SEL.1</td><td>H</td><td>L</td><td>H</td><td>L</td></tr>
<tr><td>SEL.2</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>2</td><td>SEL.2</td></tr>
<tr><td>3</td><td>PB 2B MUTE</td><td rowspan="4">O</td><td rowspan="4">Control signal for preventing crosstalk from other head during playback. Mute when the signal is high.</td></tr>
<tr><td>4</td><td>PB 1B MUTE</td></tr>
<tr><td>5</td><td>PB 2A MUTE</td></tr>
<tr><td>6</td><td>PB 1A MUTE</td></tr>
<tr><td>7</td><td>REC 2B</td><td rowspan="4">O</td><td rowspan="4">Drum head (1A, 2A, 1B, 2B) switching recording timing signal. Recording when the signal is low.</td></tr>
<tr><td>8</td><td>REC 1B</td></tr>
<tr><td>9</td><td>REC 2A</td></tr>
<tr><td>10</td><td>REC 1A</td></tr>
<tr><td>11</td><td>SYSTEM S</td><td>O</td><td>Timing pulse for communication with the main microcomputer.</td></tr>
<tr><td>12</td><td>SP Ⓗ/LP Ⓛ</td><td>O</td><td>Switches the circuit characteristics by using a tape speed.</td></tr>
<tr><td>13</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>14</td><td>AV PB Ⓗ</td><td>O</td><td>Audio/video circuit REC/PB switching signal</td></tr>
<tr><td>15</td><td>JOG Ⓗ</td><td>O</td><td>This signal goes high during variable-speed playback.</td></tr>
<tr><td>16</td><td>NC</td><td>–</td><td>OPEN</td></tr>
<tr><td>17</td><td>CAPSTAN FWD Ⓗ</td><td>O</td><td>Capstan motor rotational direction control signal. This signal goes high when the motor turns forward (FWD).</td></tr>
<tr><td>18</td><td>CAPSTAN ON Ⓗ</td><td>O</td><td>Capstan motor drive IC (IC503) ON/OFF</td></tr>
<tr><td>19</td><td>TAPE SENS. LED</td><td>O</td><td>BOT/EOT detection LED control signal.</td></tr>
<tr><td>20</td><td>UN – LOADING Ⓗ</td><td rowspan="2">O</td><td rowspan="2">Loading motor control signal
<table>
<tr><td>Signal/status</td><td>OFF</td><td>LOADING</td><td>UN – LOADING</td><td>BRAKE</td></tr>
<tr><td>LOAD</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>UN – LOAD</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
</table></td></tr>
<tr><td>21</td><td>LOADING Ⓗ</td></tr>
<tr><td>22</td><td>MO2 Ⓗ</td><td rowspan="3">O</td><td rowspan="3">Key matrix output</td></tr>
<tr><td>23</td><td>MO1 Ⓗ</td></tr>
<tr><td>24</td><td>MO0 Ⓗ</td></tr>
<tr><td>25
29</td><td>NC</td><td>–</td><td>OPEN</td></tr>
</table>

Table I-7(1)

Pin no.	SIgnal desigation	I/O	Function
30	HALL ON Ⓛ	O	Intermittent drive pulse for reducing the current flowing in the reel FG Hall element
31	–	–	Connected to GND.
32	M – RESET	I	Servo microcomputer reset signal input. This signal is sent from the main microcomputer (IC551).
33	GND	–	Connected to GND.
34	X OUT	O	Pins connected to 16 MHz crystal oscillator
35	X IN	I	
36	MAIN – CS	I	Serial communication select signal input pin
37	S – DATA IN	I	Serial data input pin
38	S – DATA OUT	O	Serial data output pin
39	CLOCK1	I	Serial clock input pin
40	MI3	I	Key matrix input
41	MI2		
42	MI1		
43	MI0		
44	BOT Ⓗ	I	Beginning-of-tape detection signal input. This signal goes high when the BOT is detected.
45	EOT Ⓗ	I	End-of-tape detection signal input. This signal goes high when the EOT is detected.
46	BATT	I	A/D input pin for detecting insufficient voltage
47	DEW Ⓗ	I	Condensation detection signal input. This signal goes high when the condensation is detected.
48	–	–	Not used.
49	T – REEL FG	I	T-reel/S-reel FG inputs. A/D input pins. Pulses are input by the reel rotation.
50	S – REEL FG		
51	ATF ERROR	I	ATF error voltage input. An A/D input pin.
52	AVSS	–	Connected to GND. (An A/D converter GND pin.)
53	AVREF	I	Connected to EVER 5V. (An A/D converter reference voltage input pin.)
54	AVDD	I	Connected to EVER 5V. (An A/D converter main power supply pin.)
55	D – PG	I	Drum PG signal input pin. A PG pulse is input for each drum rotation. About 37.5 Hz.
56	NC	–	OPEN
57	CLOG Ⓗ	I	Head clog detection signal input
58	C – SYNC	I	Rotational servo sync signal input pin

Table I-7(2)

Pin no.	Signal designation	I/O	Function
59	SP Ⓗ/LP Ⓛ	I	Tape speed detection signal input
60	D – PG	I	Not used.
61	D – FG	I	Rotational servo drum FG signal input pin. Six FG pulses are input for every drum rotation.
62	C – FG	I	Rotational servo capstan FG signal input pin. 360 pulses are input for every capstan rotation. About 1146Hz (SP), 575Hz (LP) during REC/PB.
63	NC	–	OPEN
64	DRUM FWD Ⓛ	O	Drum rotational direction control signal.
65	CAPSTAN MAX Ⓗ	O	High level output pin for bringing the capstan error to the maximum level at the start and the stop of capstan motor.
66	DRUM ERROR	O	D/A gate pulse output pin for drum error output. Outputs three values of 0V, 2.5V, and 5V.
67	C – PWM	O	PWM output pin for capstan error output. 64 μ sec sync PWM signal (15.6 kHz).
68	LIM. CONT. Ⓗ	O	Loading motor current limiter control signal for overloading. The limiter is turned on when this signal goes high.
69	C – FG	I	Tape counter drive capstan FG input pin
70	NC	–	Not used.
71	V_{DD}	I	Connected to SS 5V.
72	V_{DD}	I	
73	GND	–	Connected to GND.
74	V_{PP}	I	Connected to SS 5V.
75	DRUM ON Ⓗ	O	Drum motor drive IC (IC504) ON/OFF control signal
76	JOG VD	O	Pseudo VD output pin for insertion into video signal during variable-speed playback
77	HA PB Ⓗ	O	Head amp (IC301, IC302) and ATF IC (IC502) REC/PB switching control signal
78	FE ON Ⓛ	O	Flying erase oscillator circuit ON/OFF control signal
79	1/2 RF SWP	O	1/2 RF SWP output pin. 12.5Hz, 50%-duty pulse.
80	RF SWP	O	RF SWP output pin. 25Hz, 50%-duty pulse.

Table I-7(3)

3-3-5 Data communication

Serial data communication in the recorder section is mainly carried out by the main microcomputer (IC551) on the CAMERA-KEY C.B.A., as shown in Fig. I-11.

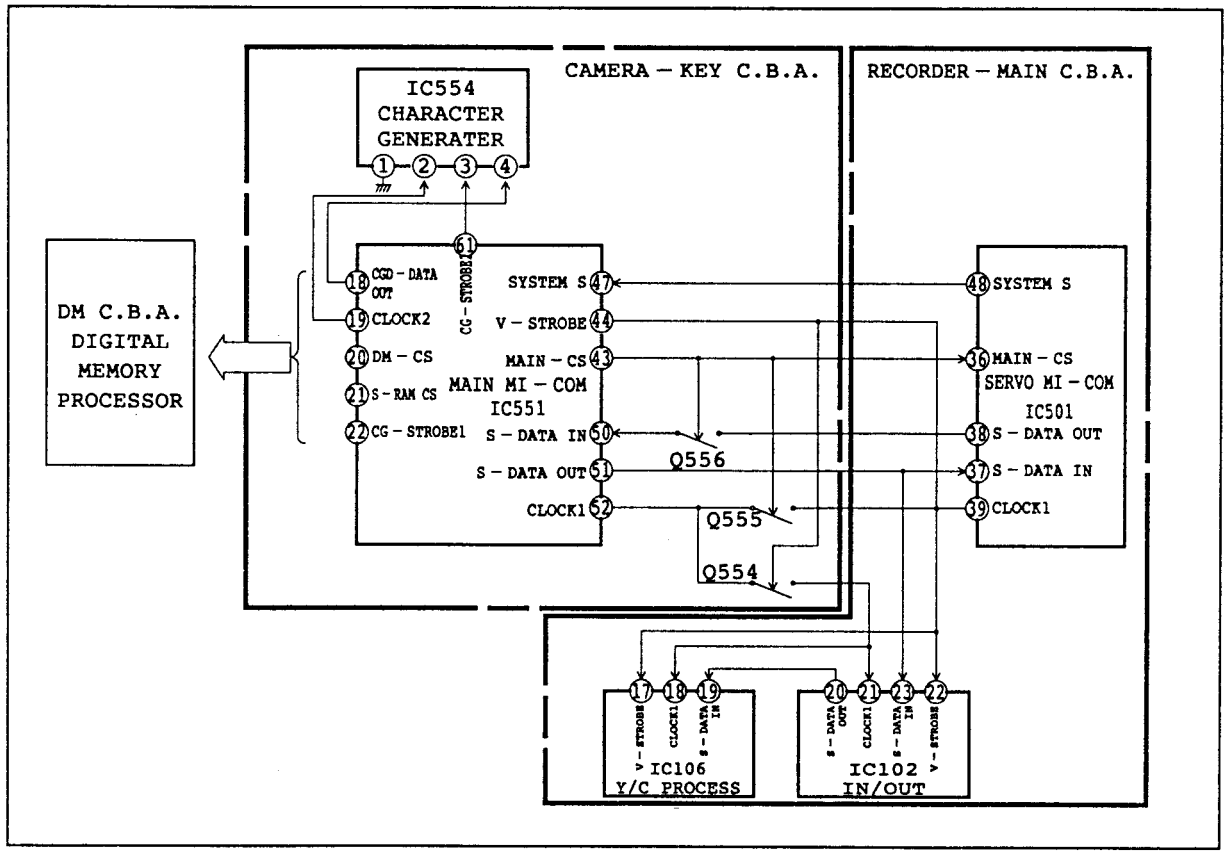


Fig. I-11

Data communication can be divided roughly into the following three types:

(1) Character generator and digital memory data communication (unidirectional communication for controlling the characters and digital memory to be displayed on the viewfinder screen)

(2) Video data communication (unidirectional communication for switching the video circuit mode and setting up the characteristics)

(3) Main data communication (bidirectional communication for transmitting instructions and information between the main and the servo microcomputer)

The communication system and the data contents are basically the same as in the E06 except that in this system all communication is under control of the main microcomputer. The character generator and digital memory communication is performed the same as before. Video and main data are transferred over the same data line and read with the V-STROBE and the MAIN-CS signal, respectively. The video data are transferred only when the mode is changed. The main data is normally transferred every 1V in both directions.

3-3-6 Safety mechanisms

To prevent a physical damage or jamming of tape due to improper setting, this camcorder provides warning indication processing, key-input rejection, and operational restriction as mentioned below.

① Detection of low main battery voltage

The following three low levels of main battery are detectable during operation.

(UNDER CUT 1)

When the voltage level at main battery terminal decreases below 5.65V for more than two seconds, the LED indicator (red or green) blinks and the "BATT" warning message appears on the viewfinder screen. Under this condition, the key input and operation are not restricted (normal operation can be continued).
If the UNREG 6V power decreases below a predetermined allowable voltage level, the low-voltage detecting signal at pin 46 of the servo microcomputer goes low and the UNDER CUT 1 signal is recognized in the microcomputer. This information is sent in serial communication to the main microcomputer which sends the CGD-DATA OUT signal from pin 18 to IC554 (character generator) to indicate the warning on the viewfinder screen. At the same time, the servo microcomputer blinks the LED indication on the R-KEY C.B.A. with the LED signal received from pin 63 or 64.

(UNDER CUT 2)

If the UNREG 6V power further decreases below 5.45V for more than two seconds, the power-off state is taken automatically through the stop state.
In the same manner as UNDER CUT 1, the low voltage level is detected at pin 79 of the servo microcomputer and the microcomputer can recognize the UNDER CUT 2 condition.
On detection of this condition, the servo microcomputer performs the ordinary power-off sequence.

(SHUT OFF)

If the main battery voltage drops rapidly, and either the SS 5V or EVER 5V decreases below 4.5V, the low signal is output from voltage detectors(IC552 and IC555) to immediately turn off power. Then the main microcomputer outputs M-RESET signal from pin 5 to reset the servo micro computer on the R-MAIN C.B.A.

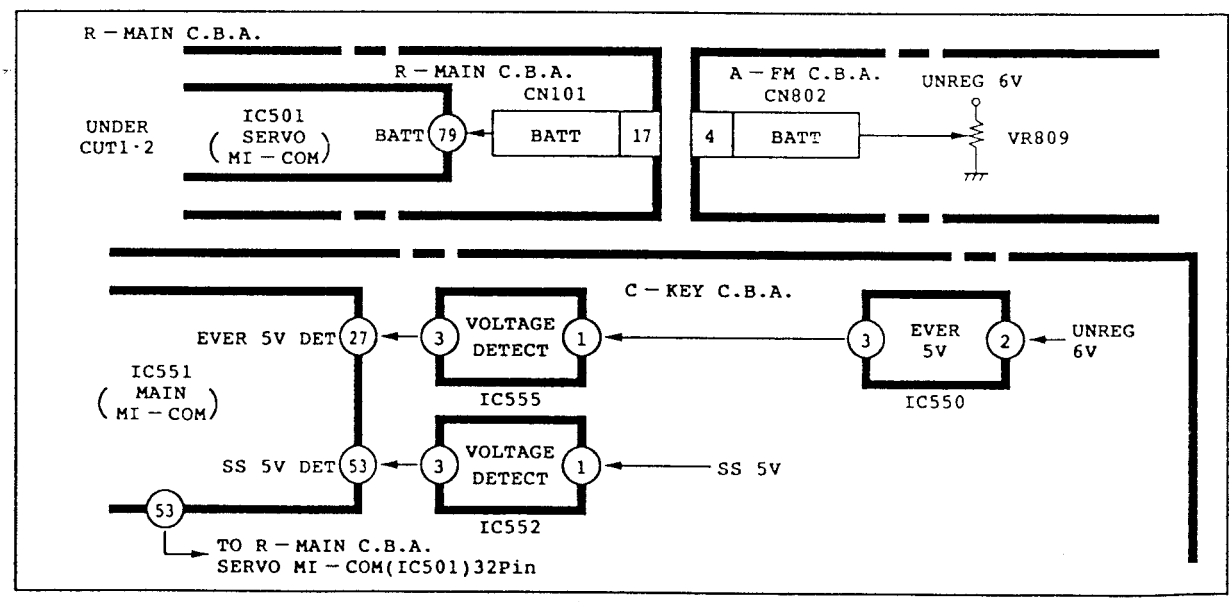


Fig. I-12

② Detection of low lithium battery voltage

When the voltage level at lithium battery terminal decreases below approximately 2.7V, the input voltage at pin 1 of IC551 (MAIN microcomputer) decreases and the microcomputer detects a low voltage condition.
Then the CGD-DATA OUT at pin 18 is sent to IC554 (character generator) to indicate a warning on the viewfinder screen.

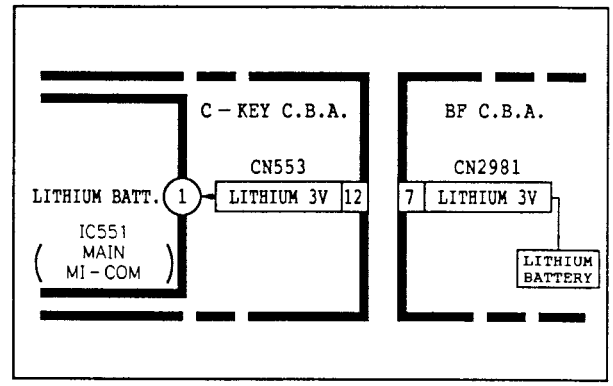


Fig. I-13

③ Condensation

The dew (moisture condensation) detecting function is provided to circumvent jamming of tape due to possible sticking.
If condensation is detected during operation, the mechanism is put in the stop state and the LED indicator(red or green) blinks as well as "DEW" on the viewfinder screen for warning. Under this condition, all keys except the POWER and EJECT keys become ineffective. Even if the tape cassette is inserted, its loading sequence is not carried out.
After the "dew" condition is removed, the camcorder waits in the stop mode for returning to normal operation. In the "dew" condition, the DEW sensor resistance on the recorder mechanism chassis increases, which raises the DEW detection voltage input to pin 47 of the servo microcomputer. If the voltage exceeds some defined value, the microcomputer decides condensation has been set, sends the serial data to the main microcomputer. Then the main microcomputer changes the mode and issues a warning.

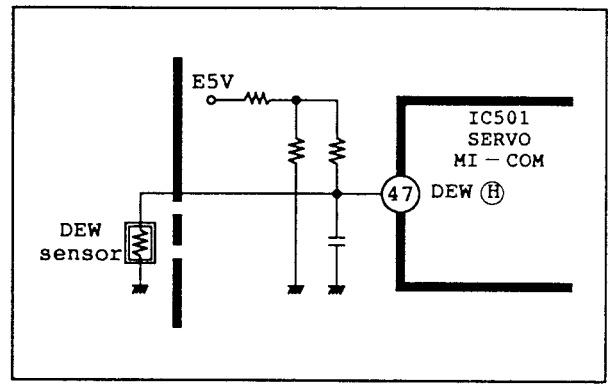


Fig. I-14

④ End-of-tape check

If the videotape is allowed to run past its end, the tape guide may be damaged or the head drum squeezed with the tape. To prevent such an event, an end-of-tape check is performed during operation. When the end of tape is detected, the tape is stopped immediately (at the end of recording/playback).
The end-of-tape detecting LED is turned ON/OFF by the TAPE SENS. LED signal output from pin 19 of the servo microcomputer (IC501). When the pin 44 and 45 input signal goes Low twice consecutively, the microcomputer decides the end of tape and stops the mechanism.
If EOT and BOT go Low twice consecutively, the microcomputer decides a "no cassette" condition and causes the "TAPE" indication on the viewfinder screen to blink.

⑤ Pause timer

In the REC PAUSE or STILL mode, the head drum rotates with the tape wound around it. If this condition persists, the tape may wear away or the head be contaminated. To prevent this, the REC PAUSE state will automatically be switched to the STOP mode and the power turned off if it lasts five minutes. If the STILL mode is kept for five minutes, it will automatically be switched to the STOP mode while the power remains turned on.

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1. Before Disassembling / Adjusting

1-1 List of maintenance tools and supplies

1-1-1 Maintenance tools

DESCRIPTION	TOOL NO.	REMARAKS
Alignment tape E (MONOSCO)	DY9 − 1062 − 000	
V sweep master	DY9 − 1113 − 500	
Y/C mix amplifier II	DY9 − 1079 − 001	
Extension cable kit	DY9 − 1112 − 000	New
Camera Mi − com. adjuster	DY9 − 1095 − 000	
Color bar chart	DY9 − 2002 − 000	
Logarithmic gray scale chart	DY9 − 2005 − 000	
Adjuster (2.6 mm)	DY9 − 2021 − 000	
Philiips screwdriver (bit paqrt only)	DY9 − 2030 − 000	
Adjuster (1.8 mm)	DY9 − 2041 − 000	
Color chart viewer (5600°K)	DY9 − 2039 − 500 − 220	EUROPE, H.K etc.
	DY9 − 2039 − 500 − 240	U.K.
Viewer amplifier (5600°K)	DY9 − 2040 − 000	
ND − 2.0 filter (100 ×100 mm)	DY9 − 2044 − 000	
CCA12 filter (46ϕ)	DY9 − 2046 − 000	

Supplies

DESCRIPTION	TOOL NO.	REMARKS
Alonalpha	CY9 − 8007 − 000	
Grease GE − X8	CY9 − 8044 − 000	
Teflon Fluorocarbon Resin MP − 102	CY9 − 3013 − 000	
Floil G902	CY9 − 3017 − 000	

*Note: For recorder machanism, refer to the mechanism manual MC-FL (DY8-3391-502 201) separately issued.

1-2 List of extension cables

Use the following extension cables.

Extension cables list for A10

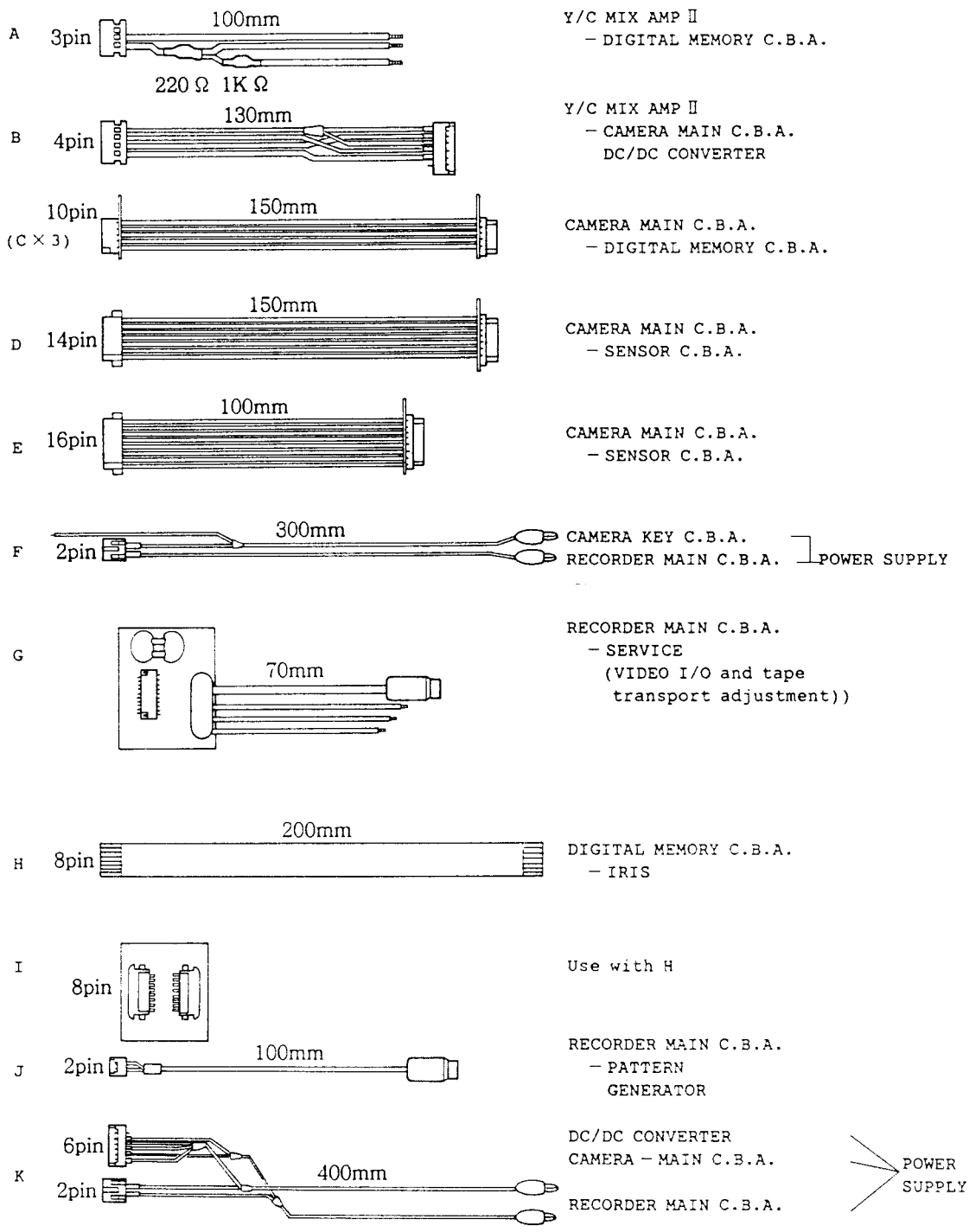


Fig. II-1

2. Disassembling

2-1 Removal/reassembling of covers

2-1-1 Removal of EVF and microphone

(1) Remove three screws ⓐ.
(2) Unplug the CN2901.
(3) Detach the EVF.
(4) Detach the microphone, and unplug the connector.

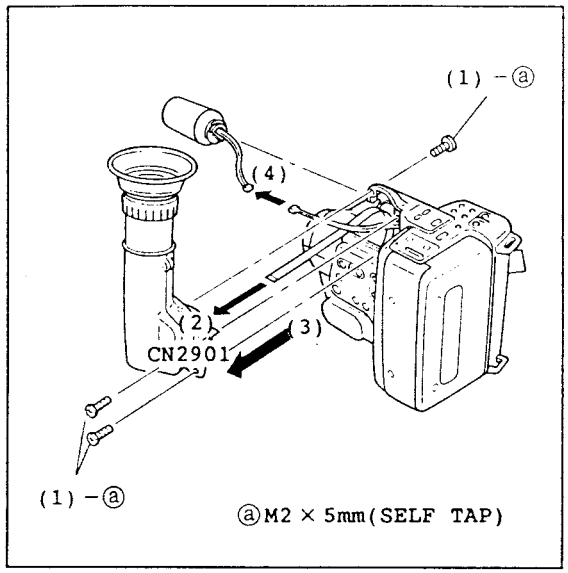


Fig. II-2

2-1-2 Removal of cassette cover and LS cover

(1) Remove four seals.
(2) Remove four screws ⓑ.
(3) Detach the cassette cover and the LS cover.

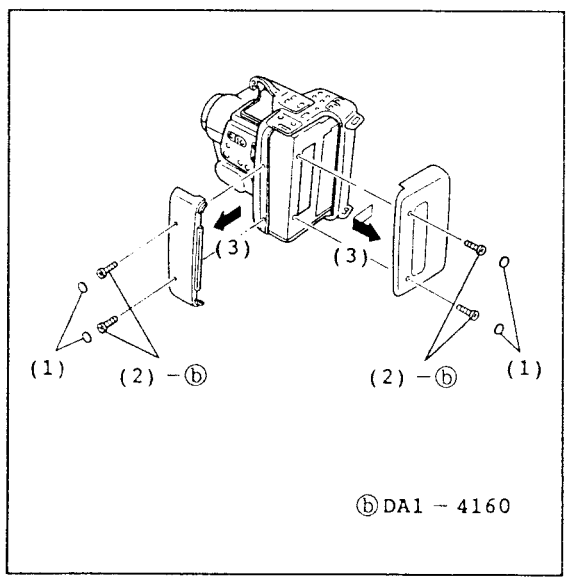


Fig. II-3

2-1-3 Removal of upper cover

(1) Remove three screws ⓐ, three screws ⓒ, one screw ⓓ and a screw ⓔ.
(2) Detach the upper cover, and unplug the CN004.

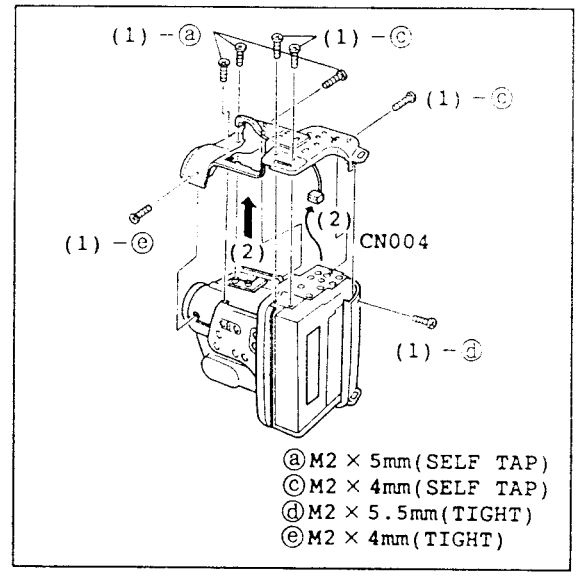


Fig. II-4

2-1-4 Removal of left cover

(1) Unplug the CN2981 and CN2982.
(2) Remove four screws ⓐ, ⓓ, ⓔ and ⓕ.
(3) Remove the left cover.

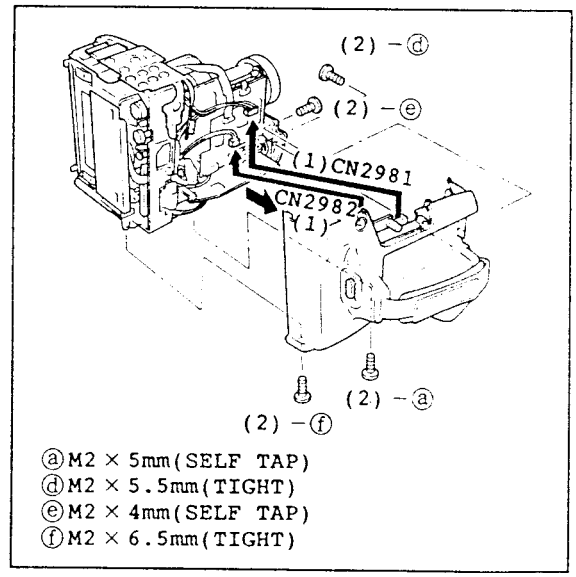


Fig. II-5

2-1-5 Removal of right cover

(1) Remove the AV cap.
(2) Unplug the CN2302(on the corner of cam- era main C.B.A.).
(3) Remove three screws ⓐ and two screws ⓒ.
(4) Detach the right cover.
(5) Remove the FRONT C.B.A. from the right cover.(At this time, be careful not to damage the claw ⓐ).

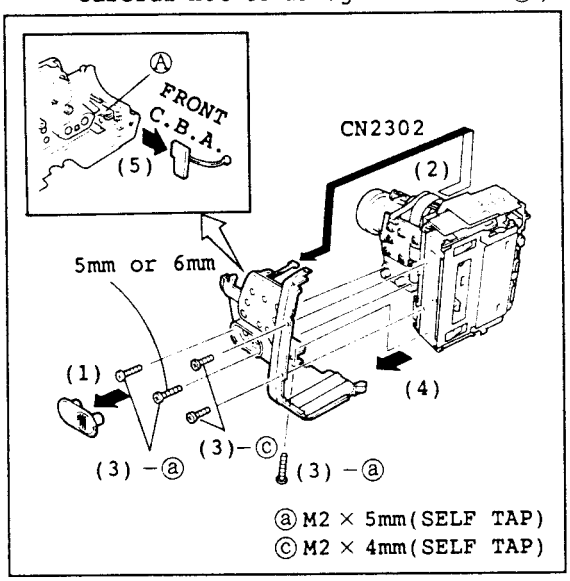


Fig. II-6

2-1-6 Separation of camera and recorder sections

(1) Unplug the CN108,CN802 and CN 2302.
(2) Unclaw the Ⓐ, then remove the CAMERA-KEY C.B.A. Then, unplug the CN550 and CN551.
(3) Separate the camera and recorder sections.

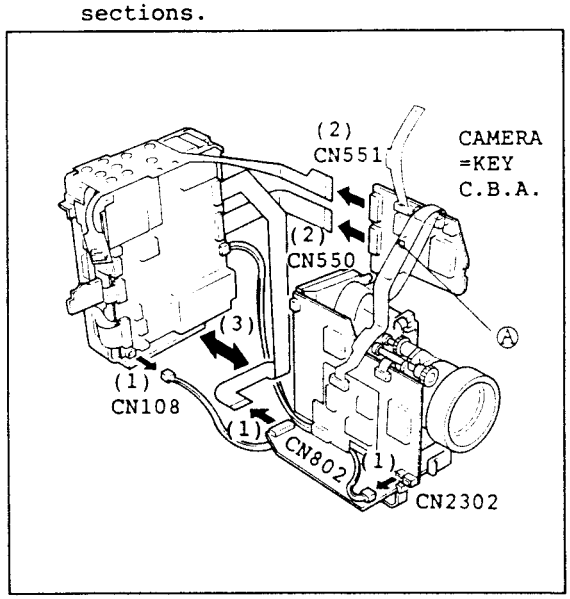


Fig. II-7

2-1-7 Removal of EVF cover

(1) Detach the finder and the ring.
(2) Remove two screws ⓖ.
(3) Remove the right EVF cover.
(4) To remove two screws ⓒ, unplug the CN2902 and CN2903.
(5) Remove the EVF1 C.B.A.
(6) Remove two screws ⓗ.
(7) Remove the EVF2 C.B.A. and the CRT assembly.

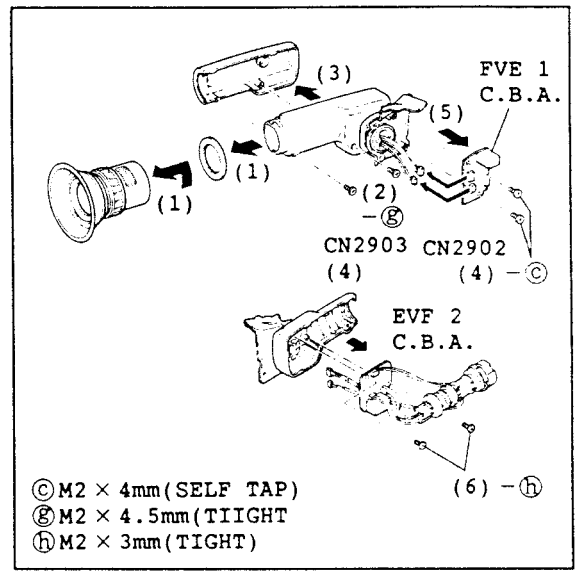


Fig. II-8

2-1-8 Removal of BATTERY FUSE C.B.A.

(1) Remove a screw ⓘ.
(2) Remove the BATTERY FUSE C.B.A.

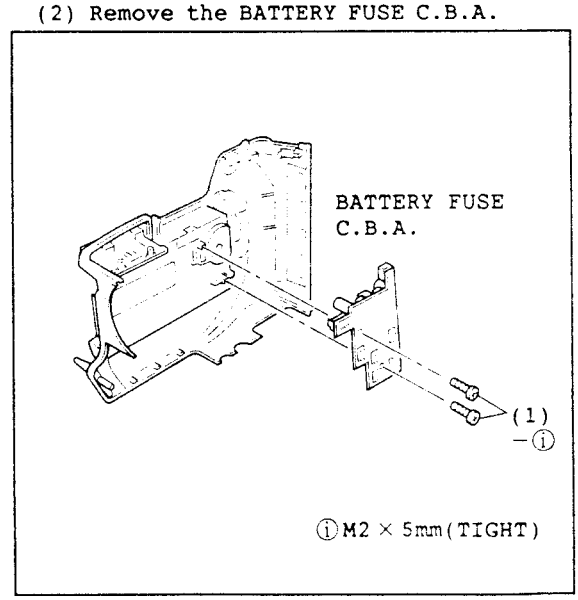


Fig. II-9

2-2 Disassembling of camera section

2-2-1 Removal of CAMERA-KEY, AV-JACK and MIC-JACK C.B.A.s

(1) To detach the CAMERA-KEY C.B.A., unplug the CN553 and CN554.
(2) Remove the AV-JACK C.B.A.
(3) To detach the MIC-JACK C.B.A., remove the screw ⓒ .

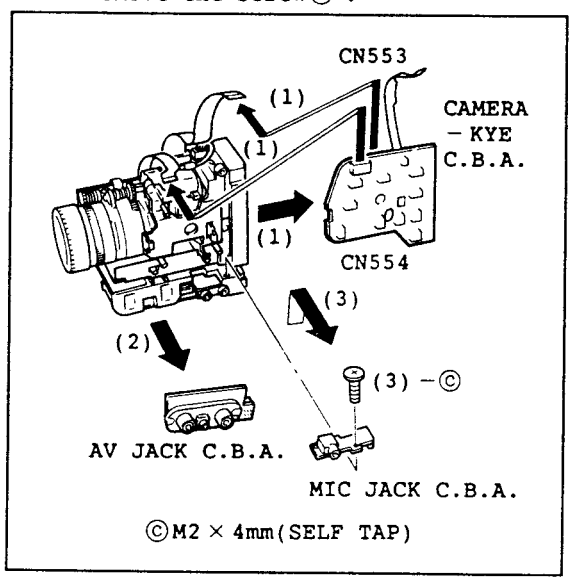


Fig. II-10

*Note: To prevent shortcircuiting, plug the CN553 and CN554 (Two-deck) properly.

2-2-2 Removal of DIGITAL MEMORY, CAMERA-MAIN and AUDIO FM C.B.A.s

(1) To remove the DIGITAL MEMORY C.B.A., unplug the CN2505.
(2) Unplug the CN2401 and CN2403.
(3) To detach the CAMERA-MAIN C.B.A., remove two screws ⓒ .
(4) To detach the AUDIO-FM C.B.A., remove two screws ⓙ .

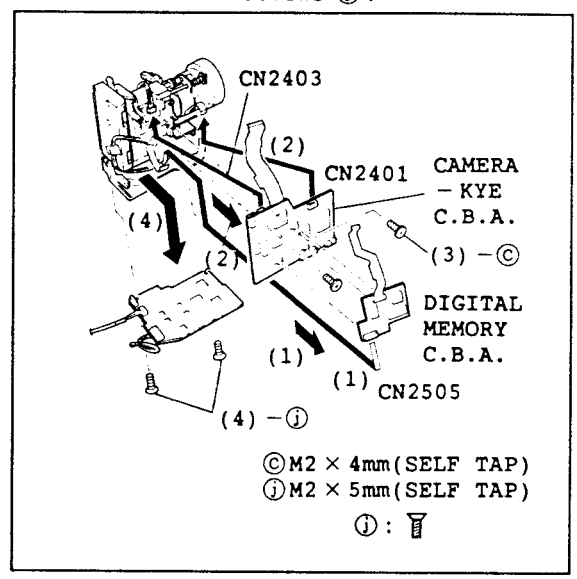


Fig.II-11

2-2-3 Removal of SENSOR C.B.A. and CCD holder.

(1) To detach the shield case 2, unsolder three points of it.
(2) To remove the cooling plate, remove the screw ⓚ.
(3) To remove the SENSOR C.B.A. and the CCD holder, remove the screw ⓛ
(4) Unsolder the pins of CCD. Then remove two screws ⓜ to detach the CCD holder.
(5) To detach the shield case 1, unsolder three points of it.
(6) To detach the CCD holder, CCD retainer plate and CCD, remove two screws ⓐ .

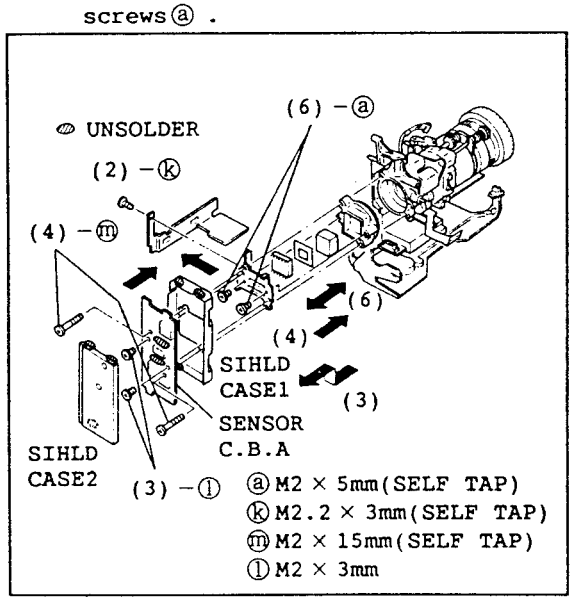


Fig.II-12

2-2-4 Removal of camera holder and DC/DC converter

(1) Remove the DC/DC converter.
(2) To detach the camera holder, remove four screws ⓐ.

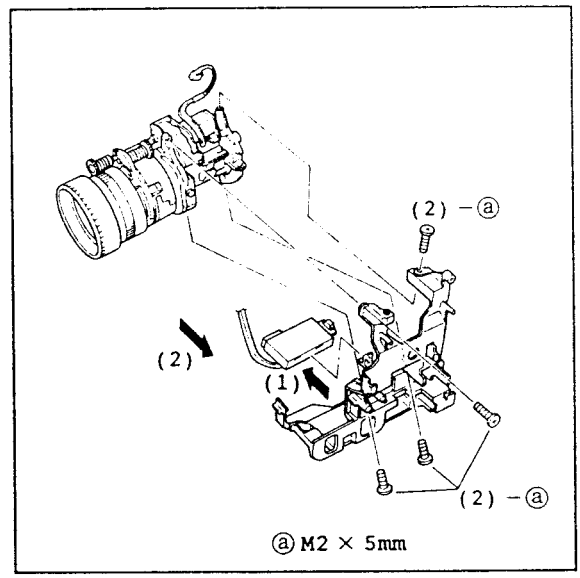


Fig. II-13

2-3 Disassembling of lens section

2-3-1 Removal of AF•PZ motors, and relay lens

(1) To detach the AF·PZ moters, remove the screw ⓝ .
(2) To detach the eccentric roller table and the eccentric roller, remove the screws ⓞ and ⓟ .
(3) Remove the relay lens.

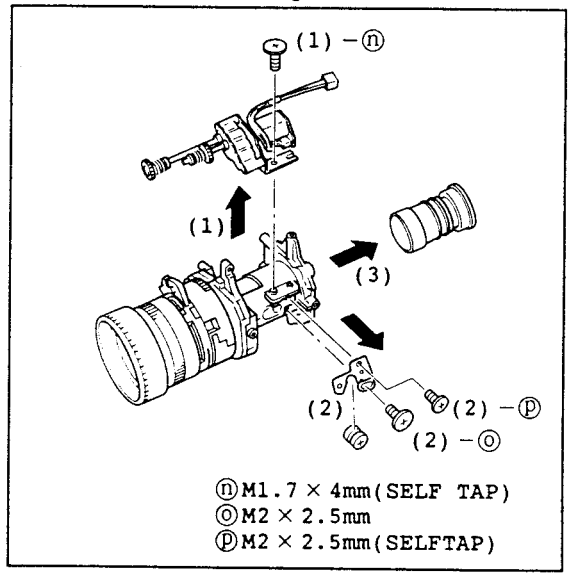


Fig. II-14

2-3-2 Removal of IG meter assembly and ENCODER C.B.A.

(1) To detach the IG meter assembly, remove three screws ⓠ .
(2) Remove the screw ⓡ , and detach the ENCODER C.B.A. (At this time, the C.B.A. retaining pin is removed).

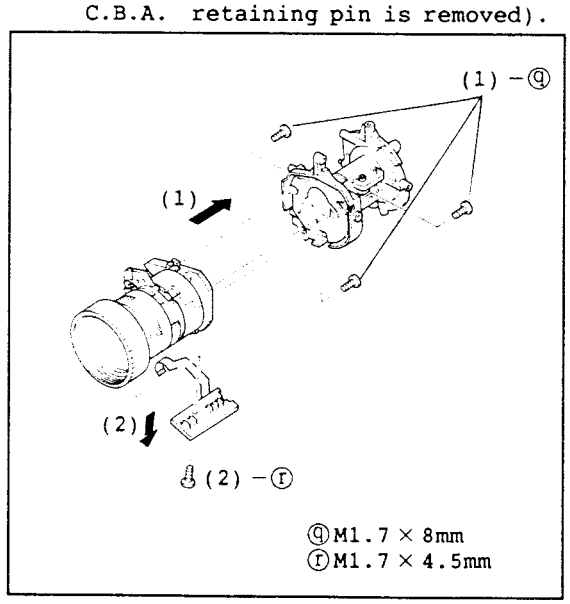


Fig. II-15

2-3-3 Removal of focus lens assembly

(1) Set the zoom ring to telephoto. Then, remove three screws ⓢ .
(2) Set the zoom ring upward. Then, detach the focus lens assembly. (Do not disassemble the zoom section).

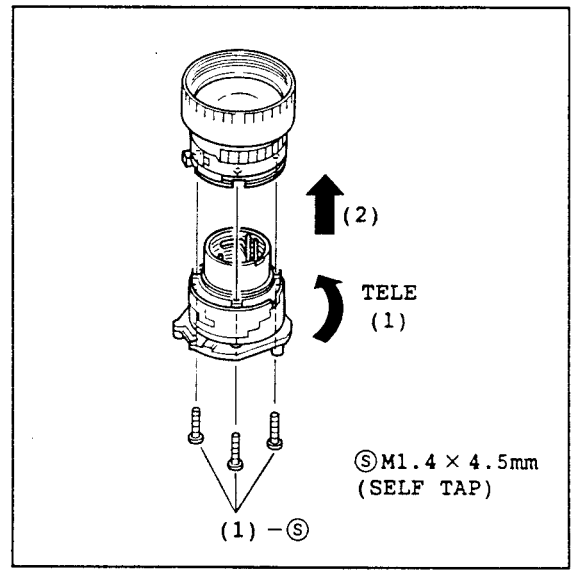


Fig.II-16

2-3-4 Oil/grease / bond application positions

After replacement/cleaning of parts, apply the followings to the indicated positions in the figure below.

① Use the Grease GE-X8 (CY9-8044-000) with the Fluorocarbon Resin MP-102 (DY9-3013-000) with the following ratio.
GE-X8 : MP-102
10 : 3
② Floil G902 (DY9-3017-000)

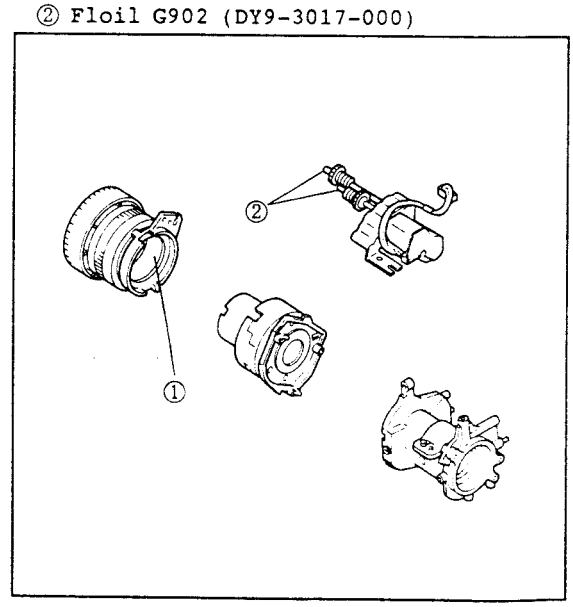


Fig. II-17

2-4 Disassembling of recorder section

2-4-1 Removal of RECORDER-MAIN C.B.A.

(1) To detach the shield case 3 of head amplifier, remove two screws ⓜ.
(2) Unplug the CN301, CN601, CN602, CN603 and CN606.
(3) Open the RECORDER-MAIN C.B.A. Then, to detach the C.B.A., unplug the CN605.

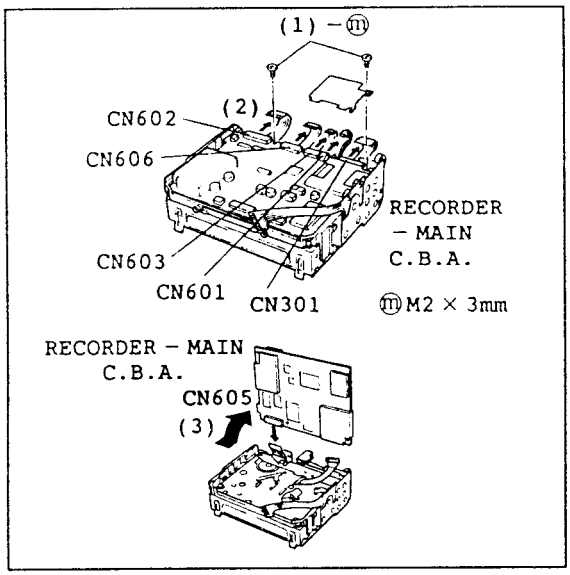


Fig.II-18

2-4-2 Removal of RECORDER-KEY C.B.A.

*Note: When detaching, do not deform the SW plate.

(1) Detach the RECORDER-KEY C.B.A.

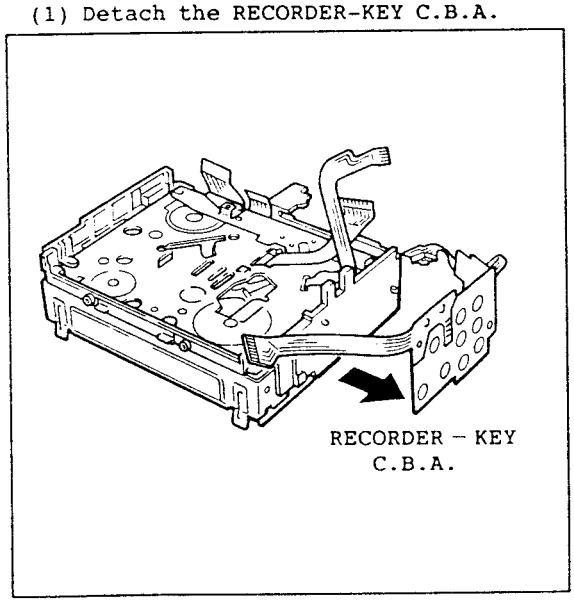


Fig .II-19

2-4-3 Removal of recorder holder 1,2 and capstan flexible connector

(1) Remove two screws ⓣ and ⓤ .
(2) Detach the recorder holder 1.
(3) Remove three screws ⓥ.
(4) Detach the recorder holder 2.
(5) Disconnect the capstan flexible connector.

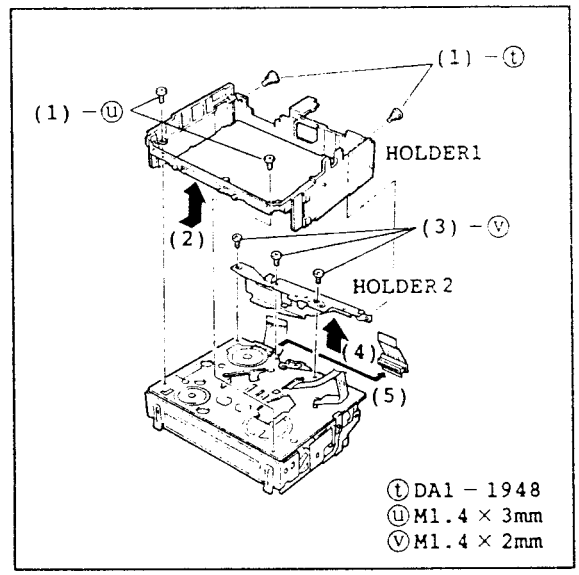


Fig. II -20

3. Preparation for Adjustments

3-1 Camera section

3-1-1 CAMERA-MAIN C.B.A., DIGITAL MEMORY C.B.A. and Operation check

Procedures:

(1) Remove the upper and the left covers.

(2) Connect the extension cable K to power supply connectors of camera and recorder sections respectively. Then, supply the +6V power from the constant voltage supplier.

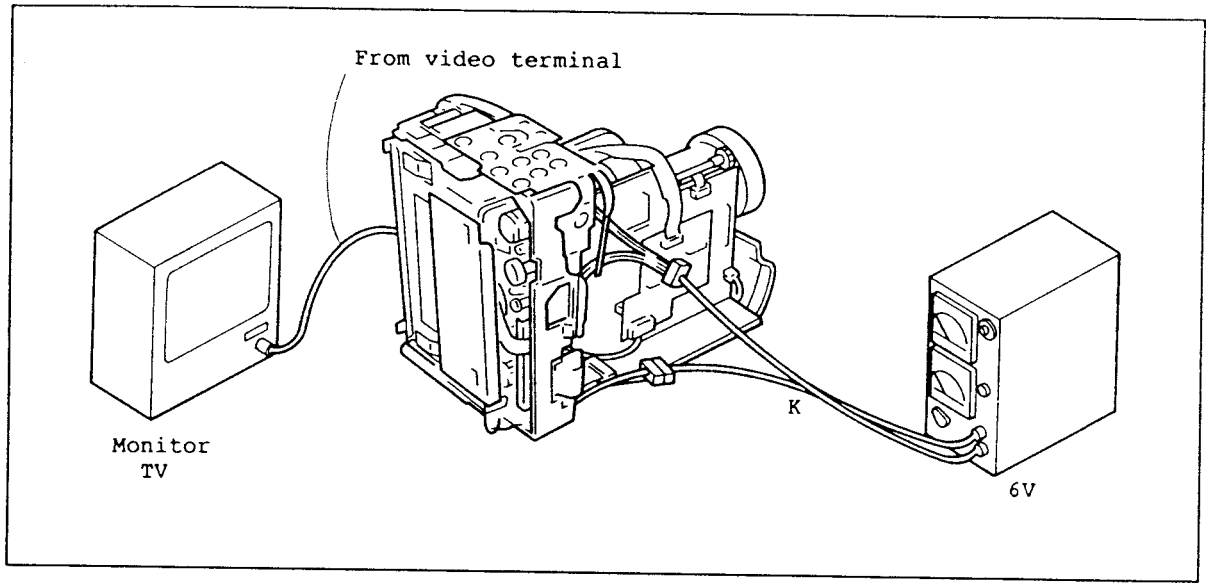


Fig. II-21

3-1-2 How to open C.B.A.s

•DIGITAL MEMORY C.B.A.

(for checking front side of CAMERA-MAIN C.B.A.)

Procedures:

(1) Unplug the CN2505, then open the C.B.A. upwards.

(2) connect the CAMERA-MAIN C.B.A. and DEGITAL MEMORY C.B.A. using three extension cables C. Connect the DIGITAL MEMORY C.B.A. and the IG meter using the cables H and I.

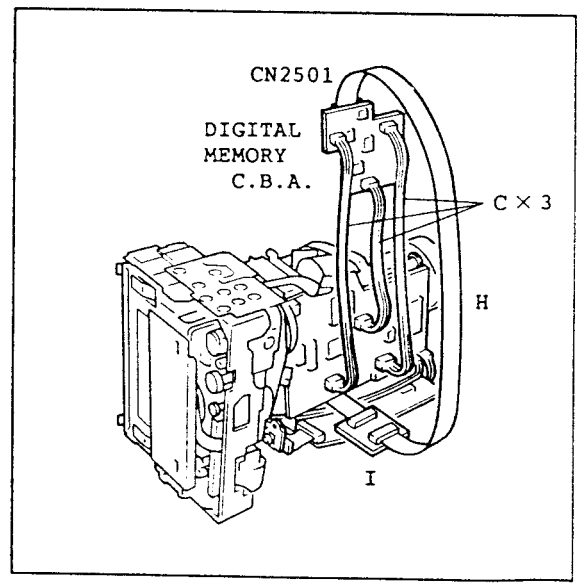


Fig II-22

• **CAMERA-MAIN C.B.A.**

(for checking rear side of CAMERA-MAIN C.B.A.)

Procedures:

(1) Unplug the CN2505. Then, detach the DIGITAL MEMORY C.B.A.
(2) Remove two screws. Open the CAMERA-MAIN C.B.A. upwards.
(3) Attach the DIGITAL MEMORY C.B.A. to the CAMERA-MAIN C.B.A. Connect the CN2505 and the IG meter with the extension cables H and I. Connect the CAMERA-MAIN C.B.A. and the SENSOR C.B.A. with D and E.

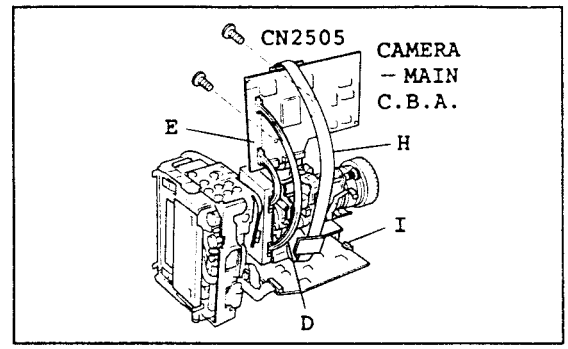


Fig II-23

3-1-3 Setting for SENSOR C.B.A. adjustments and other operation checks

Procedures:

(1) Prepare the camera unit with the CAMERA-KEY C.B.A. attached.
(2) Connect the following points by using jumper wires/soldering.
·IC551-pin65(CAMERA ON Ⓛ) [CAMERA-KEY C.B.A.] ↔ ground.
·TP2502 (SS 5V) [DEGITAL MEMORY C.B.A.] ↔ TP2107(CAMERA 5V) [CAMERA MAIN C.B.A.]

(3) Connect an extension cable A to the following points by soldering.

Extension cable A
- Red ↔ TP2502 (SS 5V) [DIGITAL MEMORY C.B.A.]
- Yellow ↔ Q2505-pin3 (VIDEO) [DIGITAL MEMORY C.B.A]
- Black ↔ TP2501 (Ground) [DIGITAL MEMORY C.B.A]

(4) Connect the extension cable A to the Y/C Mix Amp. II.
(5) Supply a 6V power to the camera power source (CN2402), DC/DC converter) by using an extension cable B via the Y/C Mix Amp.II.
(6) Perform the SENSOR C.B.A. adjustments, etc. To stop the AF motor, remove the CN2403.
Remarks: Without the recorder connection, camera keys do not effective.

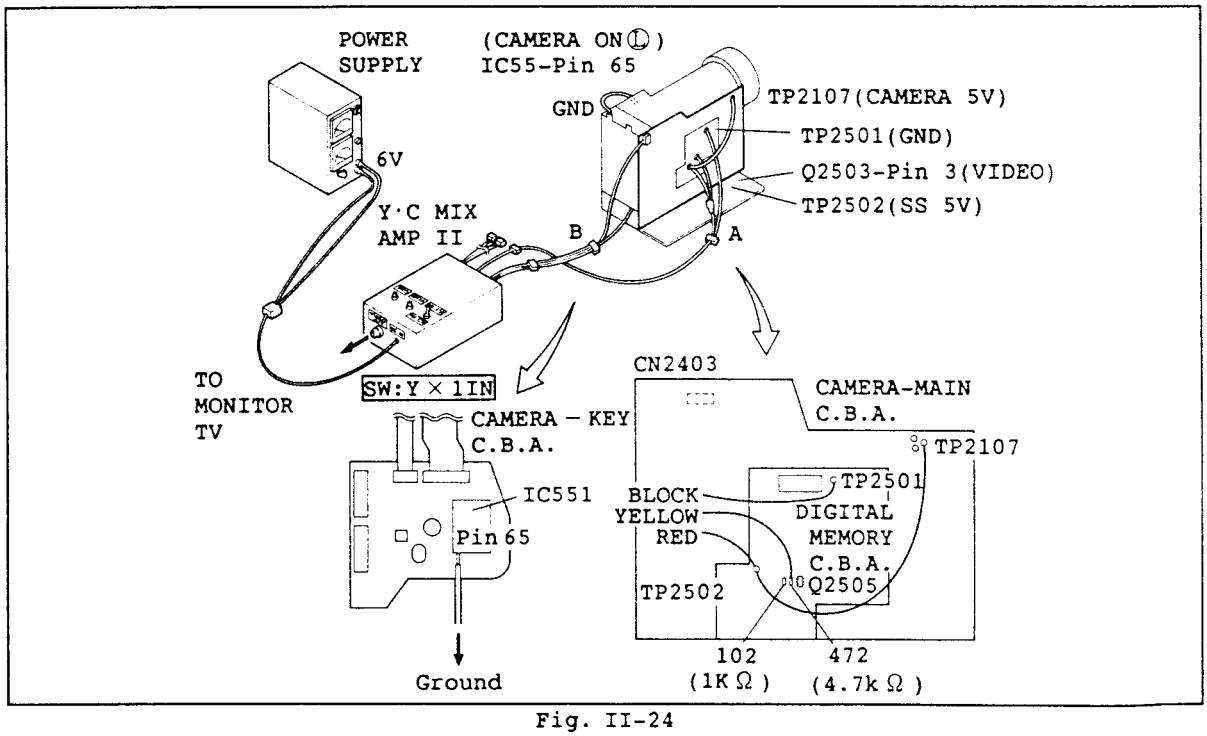


Fig. II-24

3-1-4 Setting for adjustments of camera microcomputer

Procedures:

(1) Connect the wires of Camera Microcomputer Adjuster to the TPs of CAMERA-MAIN C.B.A. according to the colors.

(2) Perform the adjustments of camera microcomputer.

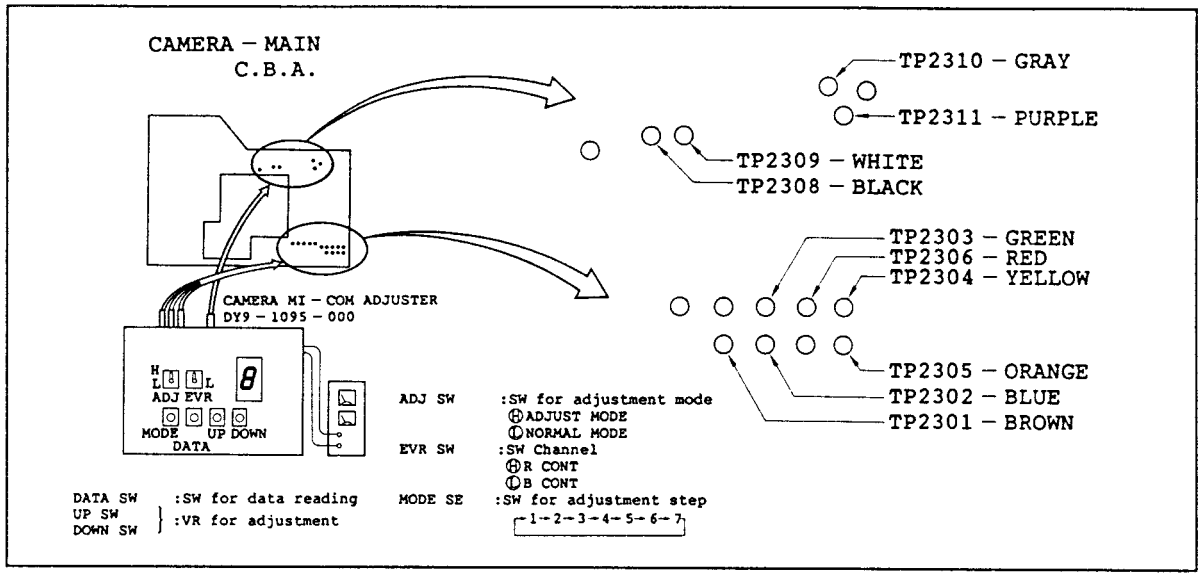


Fig. II-25

3-1-5 Kinds of Chart

(1) Fixture (Appendix for the A1)

The Fixture is used for the blooming adjustment. Attach the Fixture onto the front face of lens, then attach the each instructed filters. (Fig.II-26).

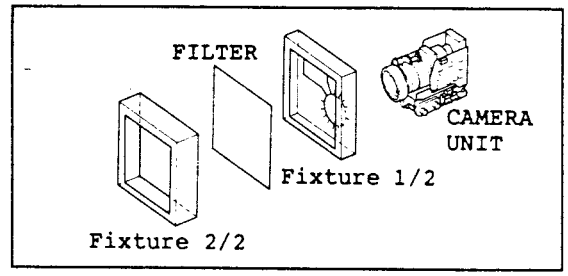


Fig. II-26

(2) U-chart

Cut a "U" pattern off from the center of black paper. (Sizes of standard angle of view are detailed in the Fig.II-27.

*Note: For the blooming adjustment, attach a piece of white paper on the rear side.

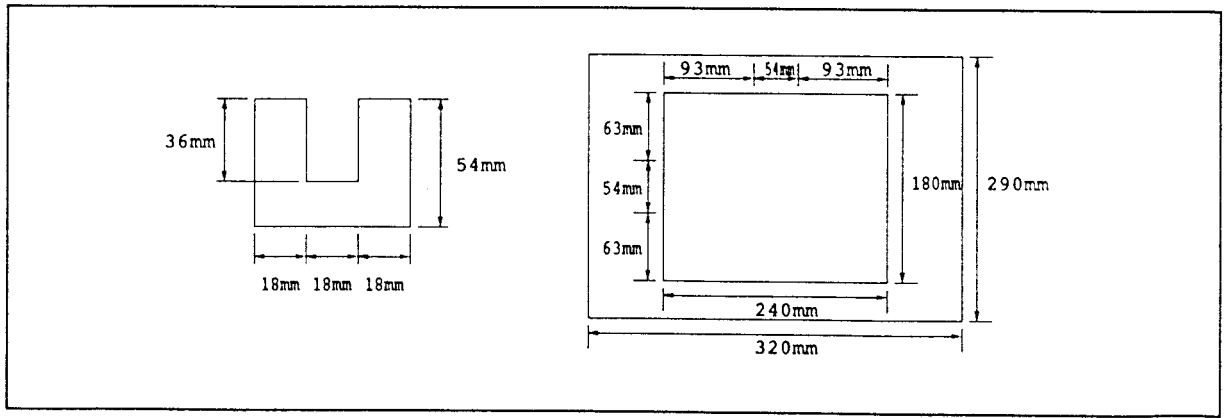


Fig. II-27

3-1-6 Other precautions

(1) Prior to each adjustment, energize the equipment for 3 minutes or more.
(2) Use a light box of 5600°K.
(3) "Standard angle of view "
- The "standard angle of view" is given when the charts displayed so as to meet maximum screen of the full-scan monitor.
- with an oscilloscope, adjust the grayscale (36 μ s) and the color bar (52 μ s) followed by shooting.
- Shoot the white chart at its center.
- Unless otherwise specified, shooting distance must be 1.4 m (approx.).

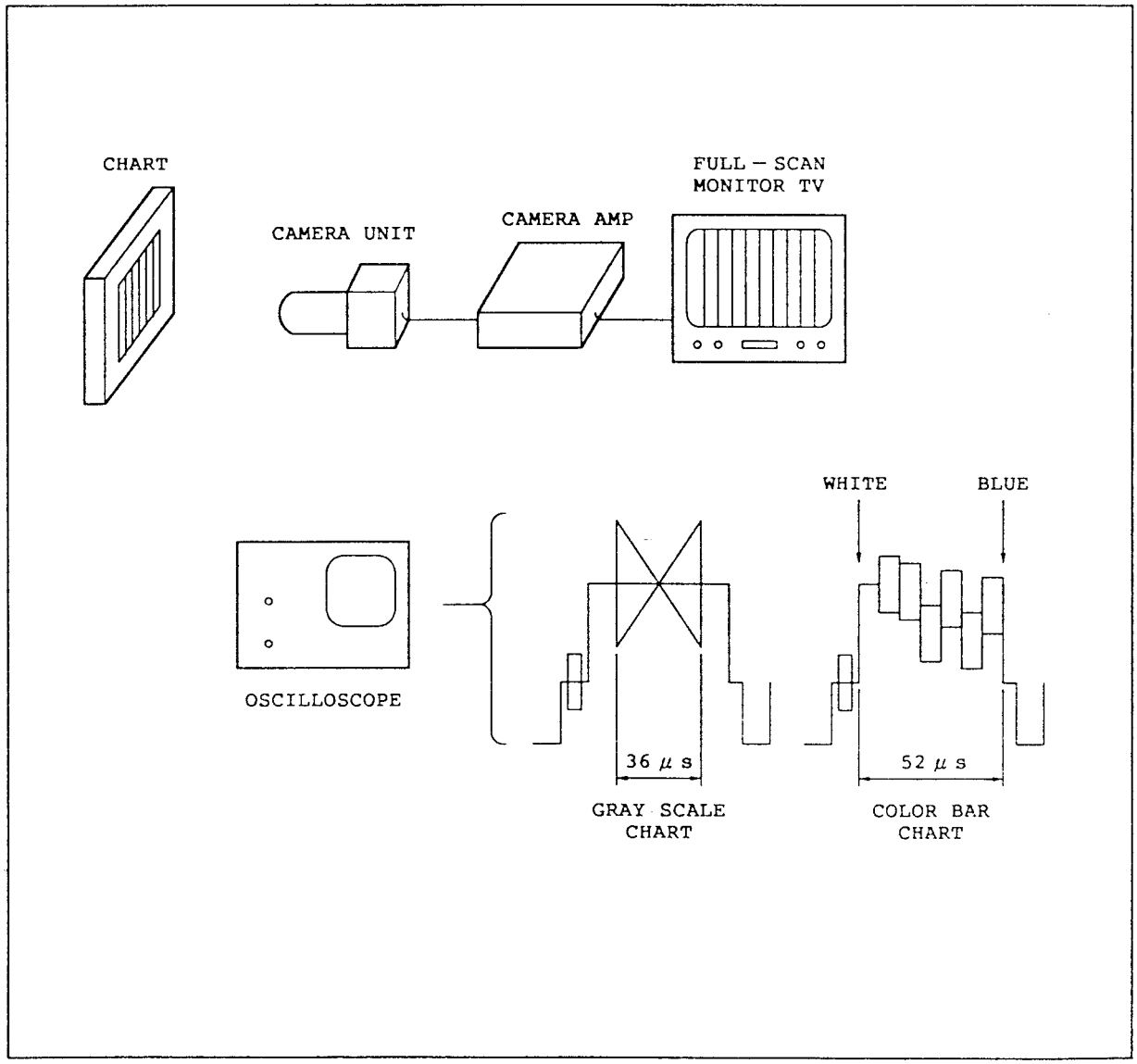


Fig. II-28

3-2 Preparation for adjustments of recorder section

3-2-1 Setting

(1) Equipments

- Pattern Generator
- Extension Cable kit (DY9-1110-000) F.G.J.
- Constant Voltage Supplier (6V)
- Constant Voltage Supplier (15V) or Camera Adapter

(2) setting 1 (for electrical and tape transport adjustments)

Procedures:

(1) Prepare the recorder section with the CAMERA-KEY C.B.A. attached.
(2) Connect an extension cable F to the CN604 (RECORDER-MAIN C.B.A.) and a pin 2 of IC550 (CAMERA-KEY C.B.A.), and supply a 6V power from the constant voltage supplier.
(3) Connect an extension cable J to the CN102 (RECORDER-MAIN C.B.A.), and supply the video signal from the pattern generator.
(4) Connect an extension cable G to the CN101 of RECORDER – MAIN C.B.A. for supplying the video signal to the monitor TV. (Signal for the tape transport adjustment is also provided.)
*Note: Adjust the input signal for the recorder unit to 0.5 VP-P by turning a VR of pattern generator.
(5) To display characters on the screen, connect the EVF.(To stabilize a picture, connect a pin 1 of IC553 of CAMERA – KEY C.B.A. to ground via a 1MΩ resistor)
(6) Perform the electrical or tape transport adjustment.

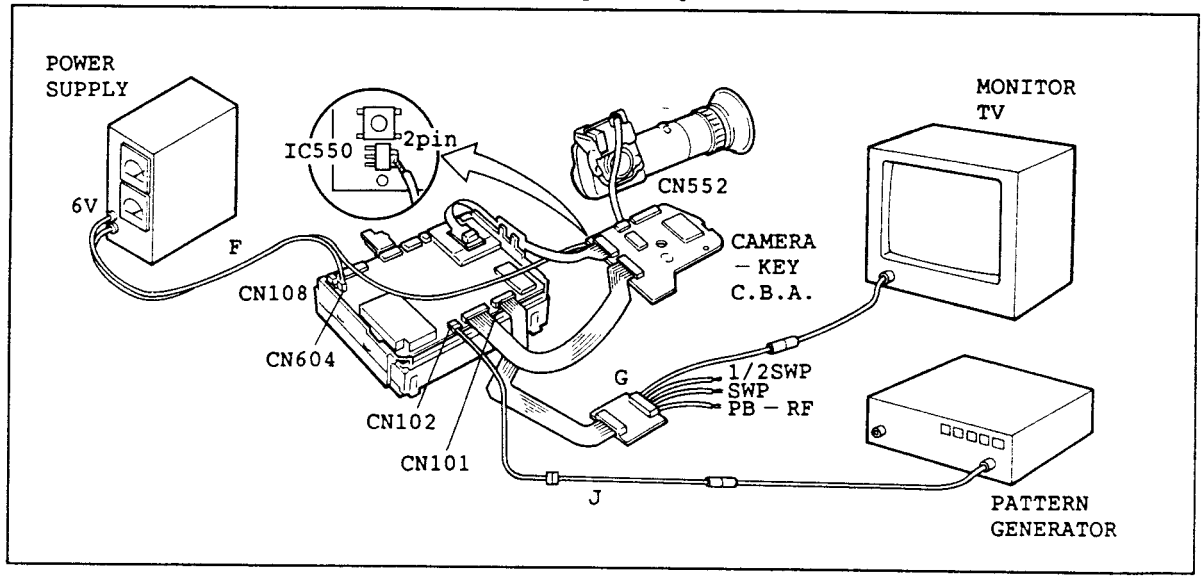


Fig. II-29

(3) Setting 2 (for recording current adjustment)

procedures:

(1) In addition to the setting 1 state, connect the CN101 and CN108 to the AUDIO-FM C.B.A.

3-2-2 How to open C.B.A.

Procedures:
(1) Remove two screws to open the C.B.A. At this state, the rear side of C.B.A. can be checked.

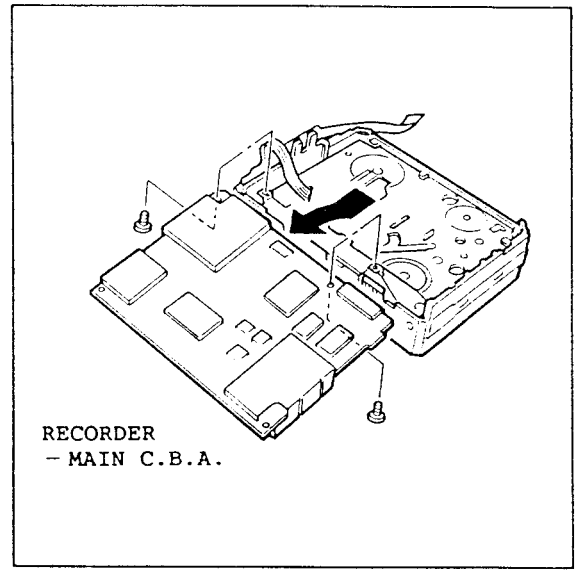


Fig. II-30

3-2-3 Service Modes

Service modes are provided for adjustments/operation checks. Activate each mode with the recorder and the EVF connected (for the purpose of character display).

(1) Transition to service mode

Mode is switched over by short-circuiting the pattern of wireless remote controller.

Service mode 1 → 2 → 1 → Normal mode
↑ ↓

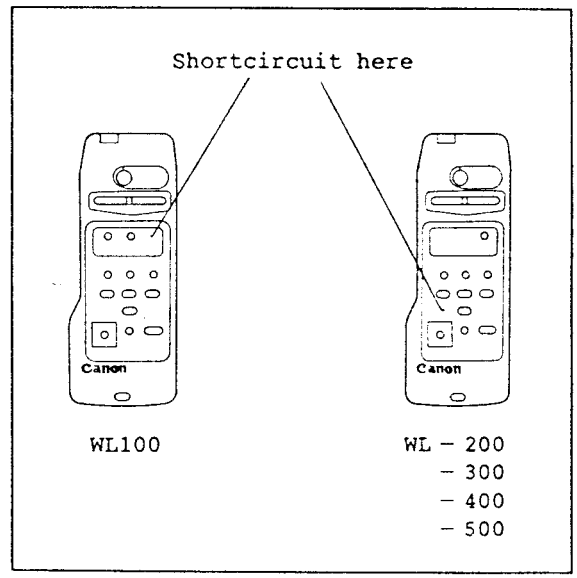


Fig. II-31

(2) Function of service mode

Note: To clear the service mode, turn off the power:

[Service mode 1]

Mode for the insufficient power adjustment.
The LED flashes in 0.5msec.

The data is displyed as in the Fig.II-31. Each line indicates the code as follows.

First line…	Undercut adjustment
Second line…	Error*(Hexadecimal
Third line…	notation)

*The current error only is displayed. On occurrence of error, only the power and the eject keys are effective.
(The power is backuped by a lithium battery.)

Each content of error code is shown in the Table II-1 in page II-15.

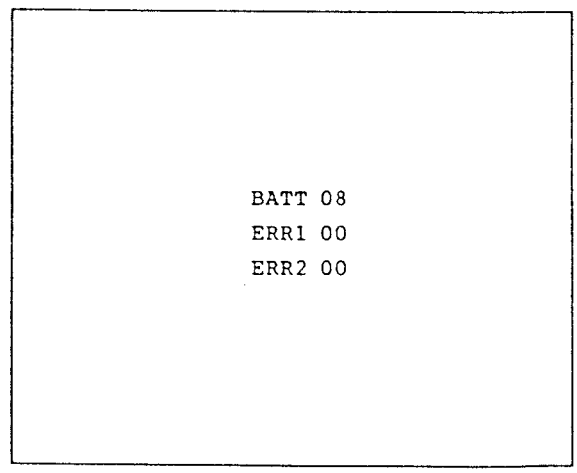


Fig. II-32

[Service mode 2]

Mode for the tape transport adjustment.
The LED flashes in 1 msec. Outputs 70% RF envelope via an extension cable G. (For the details, refer to the Service Mannual of MC-FL)

The data codes are displayed as in the same manner in the service mode 1.

Remarks: To erase the data code on the screen, turn off the power.

	Code	Error(abnormality)
ERR1	01	Loading motor rotation
	02	Reel rotation(normal status)
	04	Reel rotation(in unloading)
	08	Start up of capstan motor
ERR2	01	Drum rotation
	02	Drum phase
	20	Start up of drum motor
	40	Safety timer (in loading)
	80	Safety timer (in unloading)

Table II-1

*Note: When more than two erros are occurred simultaneously, the added number of codes are displayed in hexadecimal notation.

4. Adjustments (Lens section)

4-1 Optics

4-1-1 Back focus adjustment (T/W zoom correction)

CHART	Siemens chart losatd 3m away
M.EQ.	Monior TV
TOOL	Phillips screwdriver, Adjuster(2.8mm)
ADJ.	Focusing ring, relay lens
SPEC.	Eliminate difference of focusing between T/W ends

*Note: Open the aperture fully as possible.

(1) Loosen the screw ⓐ.
(2) With the telephoto-end zoom settng, bring the pattern image into focus by turning the focusing ring.
(3) With the wide angle end zoom setting, bring the pattern image into focus by moving the relay lens back and forth.
(4) Repeat the above steps (2) and (3) to remove defocusing at the telephoto and wide angle ends.
(5) Tighten the screw ⓐ.

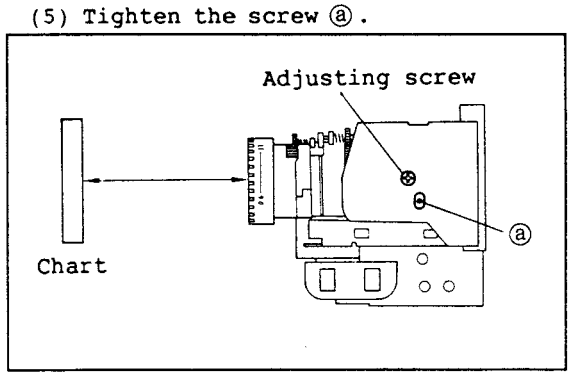


Fig. II-33

4-1-2 Preparation for lens focus adjustment

*Note: For this adjustment, pick up an actual scene at infinity (150 m or more away), or use a collimator.

Described below is the preparatory procedures by using the single-lens reflex camera and the lens(focal length: 200mm or more recommended) in stead of a collimator.

CHAT	Ground glass(30mm × 40mm,approx.)
TOOL	Single-lens reflex camera,lens(focal length:200mm or more),magnifier

(1) Open the aperture of single-lens reflex camera fully. Then, open the rear lid.

*Note: If the shutter equips the valve mechanism, lock it for opening the aperture. If not (e.g. Canon T series, etc.), open the aperture by using the slow shutter and take out the internal battery immediately while the shutter is opened.

(2) Secure the ground glass to the inside rail face by pressing it. At this step, the ground surface should face the lens side.
(3) Shoot a scene at infinity. To check if it is in best focus, enlarge the image on the ground glass by a magnifier.

*Note: Distance for infinity:See the Fig. II-34.

(4) After the above checking, remove the ground glass once and mark crosshairlines on it. Then, attach it to the camera again.

*Remark:Using this substitute collimator, the back focus adjustment (T/W zoom correction) can be performed with high accuracy within a short time.)

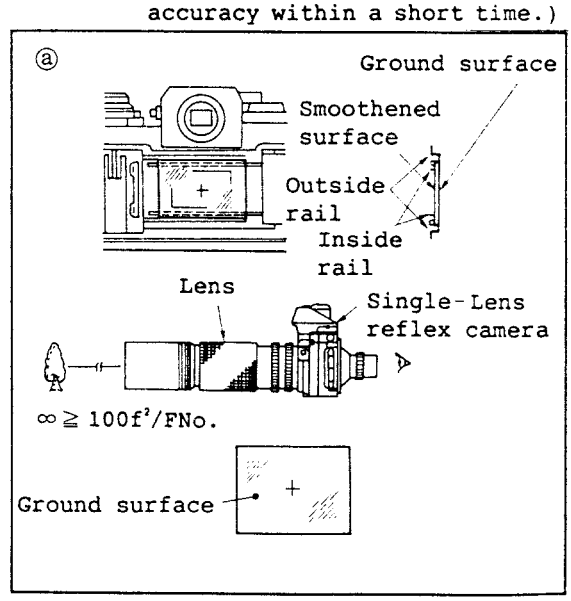


Fig. II-34

4-1-3 Lens focus adjustment

*Note: Perform this adjustment only when the focus lens assembly is replaced.

Described below is the adjustment procedures by using the single-lens reflex camera instead of a collimator.

CHART	Ground glass(30mm × 40mm,approx.)
M.EQ.	Monitor TV
TOOL	Single-lens reflex camera,lens (focal length:200mm or more), phillips screwdriver, Adjuster(1.8mm)
ADJ.	Focusing lens,relay lens
SPEC.	No defocusing between T/W ends(at 1.5mm before infinity)

(1) align the axis of camera unit and that of a colimator as accurately as possible.
(2) With the telephoto end zoom setting, adjust focus using the front lens. At this time, hold the focusing ring to the infinity (∞) stop position, and turn the concave helicoid until the best focus is obtained.
(3) Loosen a screw ⓐ.
(4) Move the relay lens back and forth with the wide angle end to bring the image into best focus.
(5) Repeat the steps (2) and (4) until the object is into best focus both in wide and telephoto ends.
(6) Lock the relay lens and check that the object is in best focus.
(7) Confirm that the focusing ring is butted onto the stopper at infinity side. Then, fix the focusing ring and the concave helicoid with an instantaneous adhesives specified. (Alonalpha)

*Note: 1. Do not apply the adhesive excessively and also be careful not to drop it onto the other positions except indicated.
2. Do not touch forcibly for five minutes after application.

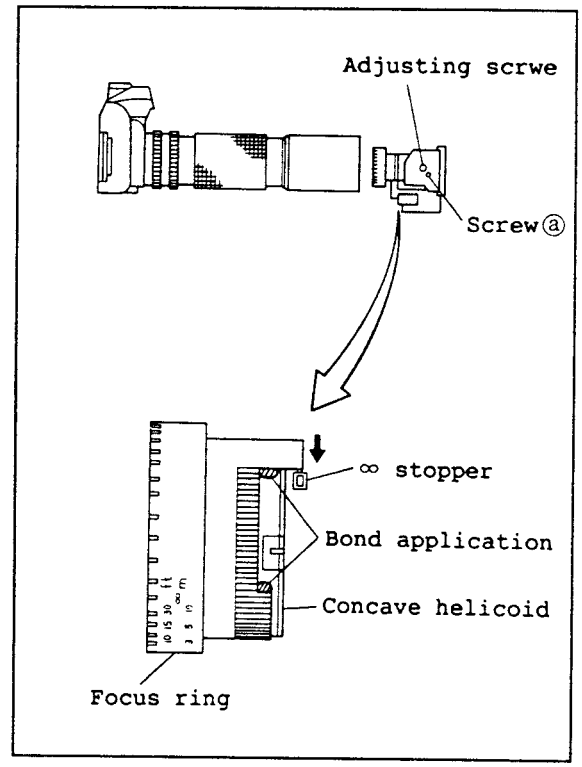


Fig. II-35

5. Eectrical Adjustments (Camera section)

*Note: For the following adjustments from 5-2-4 to 5-2-11, use the ADJUSTMENT MODE. To set it, connect the TPs as below.

TP2301(ADJ MODE) ↔ TP2107(CAMERA 5V)

5-1 AF

5-1-1 Clock adjustment

MODE	AF
M.EQ.	Oscilloscope
TP/TRIG	C－MAIN CBA TP2411(AF FRAME) TP2413(HD)
ADJ.	C－MAIN CBA VC2401(CLOCK)
SPEC.	24^{+1}_{0} μs

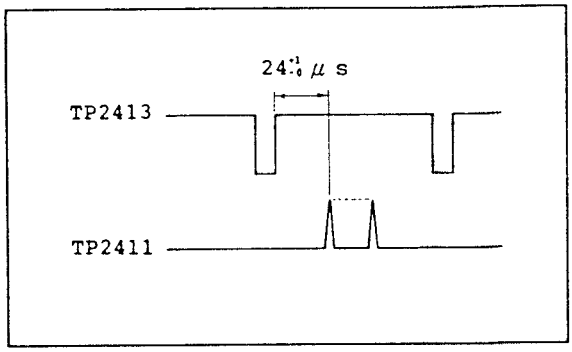


Fig. II-36

5-1-2 ES Offset adjustment

CHART	Lens-capped
MODE	AF
M.EQ.	Digital voltmeter
TP/TRIG	C－MAIN CBA TP2403(ES OFFSET) TP2402(+1.8V)
ADJ.	C－MAIN CBA VR2401(ES OFFSET)
SPEC.	0 ± 10mV

Procedures:

(1) Connect the TP2401 (Y) of C-MAIN CBA to ground via a capacitor (100 μF).
(2) Adjust the digital voltmeter to 0 ± 10mV by connecting the following points.
TP2403 → Measuring side
TP2402 → common side

5-2 Camera

5-2-1 Clock frequency adjustment

M.EQ.	Frequency counter(Counnect via an oscilloscope)
TP/TRIG	C－MAIN CBA TP2103(CSP1)
ADJ.	SENS. CBA VC2001(CLOCK)
SPEC.	4.828125MHz ± 15Hz

5-2-2 PLL adjustment

M.EQ.	Digital voltmeter
TP/TRIG	C－MAIN CBA TP2106(PLL)
ADJ.	SENS. CBA VC2002(PLL)
SPEC.	2.5 ± 0.1V

5-2-3 IRIS encoder adjustment

M.EQ.	Digital voltmeter
TP/TRIG	C－MAIN CBA TP2404(IRIS POSITION)

•CLOSE voltage

MODE	IRIS CLOSE TP2505(IRIS O/C) ↔ TP2501(GND)
ADJ.	DM CBA VR2501(OFFSET)
SPEC.	0.80 ± 0.02V

•OPEN voltage

MODE	IRIS OPEN TP2505(IRIS O-C) ↔ 5V(DM CBA)
ADJ.	DM CBA VR2502(GAIN)
SPEC.	2.80 ± 0.02V

*Note: Repeat the iris opening and closing for the adjustment.

5-2-4 Auto iris adjustment (camera microcomputer adjustment)

Note: After the adjustment, operate the iris with lens-capped and uncapped repeatedly to check the specified value.

CHART	Grayscale(5600° K)
MODE	STEP1 for camera microcomputer adjustment(PII − 22)
M.EQ	Oscilloscpe
TOOL	Camera MI − COM. Adjuster
TP·TRIG	C − MAIN CBA TP2101(S/H OUT) TP2102(FH/2)
ADJ.	EVR Up,Down(Camera MI − COM. Adjuster)
SPEC.	300 ± 10mV

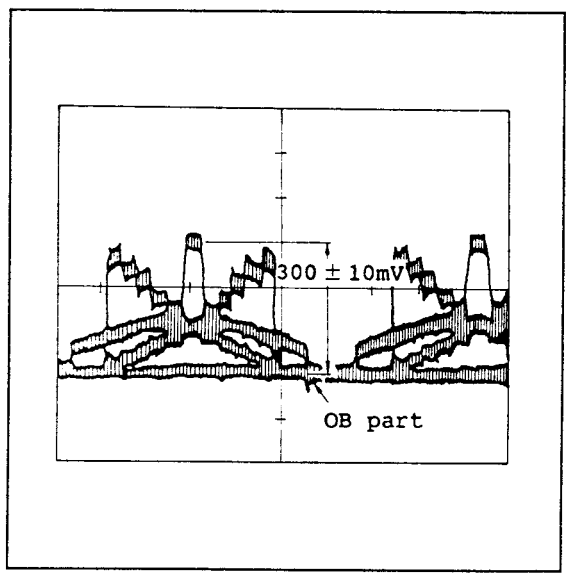


Fig. II-37

5-2-5 OB set adjustment

CHART	Lens-capped
MODE	Adjust MODE
M.EQ.	Oscilloscpe
TP/TRIG	C-MAIN CBA TP2105(YH) TP2102(FH/2)
ADJ.	C-MAIN CBA VR2101(OB SET)
SPEC.	Levels the centers of waveform and the blanking(0 ± 10mV)

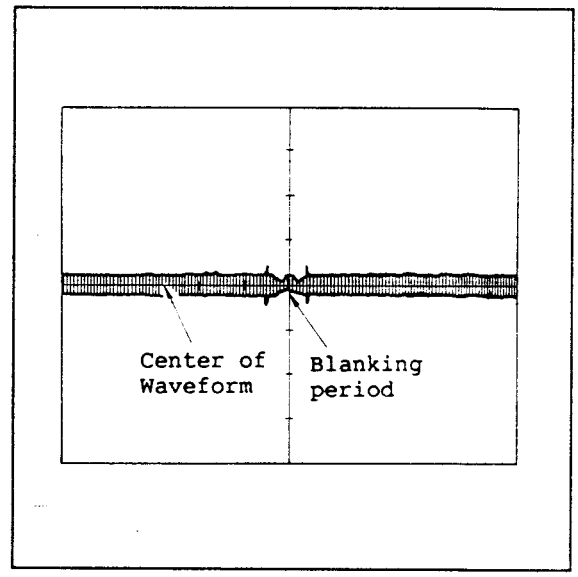


Fig. II-38

5-2-6 Y level adjustment (camera microcomputer adjustment)

*Note: Before the adjustment, release a Y-clip by shortcircuiting the following points,(after the adjustment, be sure to reconnect them)
TP2201(Y CLIP)↔TP2107(CAMERA 5V)

CHART	Grayscale(5600° K)
MODE	STEP 2 for camera microcompter adjustment(PII − 22)
M.EQ.	Oscilloscope
TOOL	Camera MI − COM. Adjuster
TP/TRIG	C − MAIN CBA TP2202(VIDEO) TP2102(FH/2)
ADJ.	EVR Up, Down(Camera MI-COM. Adjuster)
SPEC.	0 ± 10mV

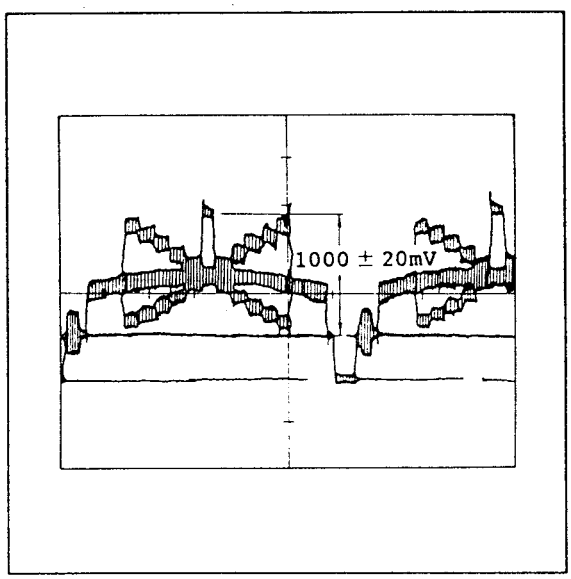


Fig. II-39

5-2-7 1/2 fH color difference adjustment

CHART	Lens-capped
MODE	ADJUST MODE
M.EQ.	Oscilloscope
TP/TRIG	C − MAIN CBA TP2108(C 1H) TP2102(FH/2)
ADJ.	C − MAIN CBA VR2103(FH/2 COMP)
SPEC.	0 ± 10mV

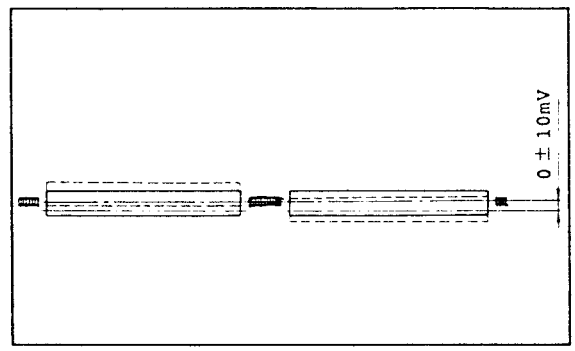


Fig. II-40

5-2-8 Color difference gain adjustment

CHART	Color bar(5600° K)
MODE	ADJUST MODE
M.EQ.	Vectorscope
TP/TRIG	C − MAIN CBA VR2104(C1H LEVEL), VR2203(BURST PHASE)VC2201(SC − 90)
SEPC.	Each dot to be together. Dot split tolerance: Phase;Within 5° , Gain ;Within 10%

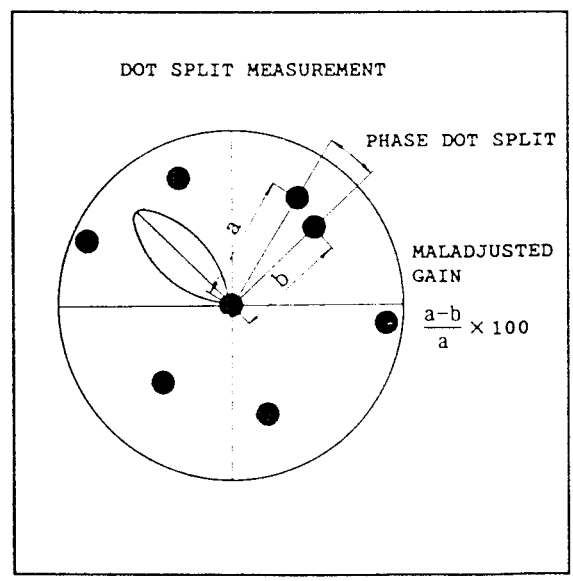


Fig. II-41

5-2-9 Carrier balance adjustment

CHART	Grayscale(see Fig.II-42)(5600° K)
MODE	ADJUST MODE
M.EQ.	Vectorscope
ADJ.	C-MAIN CBA VR2201(R-Y C.B.) VR2202(B-Y C.B.)
SEPC.	Bright dot(dark part)to be centered

*Note: 1. Set the angle of view as shown in the Fig. II-42 by turning a zoom ring to the wide angle side.
2. If two dots are appeared, choose a dot in the dark part.

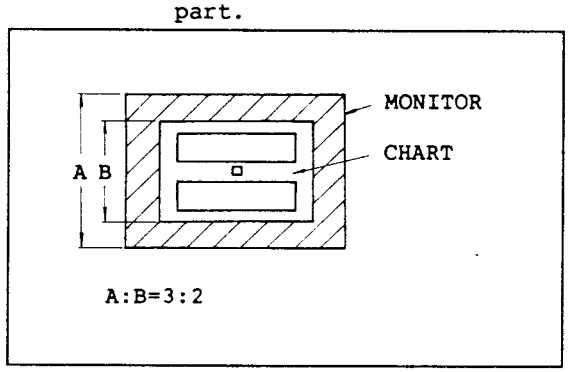


Fig. II-42

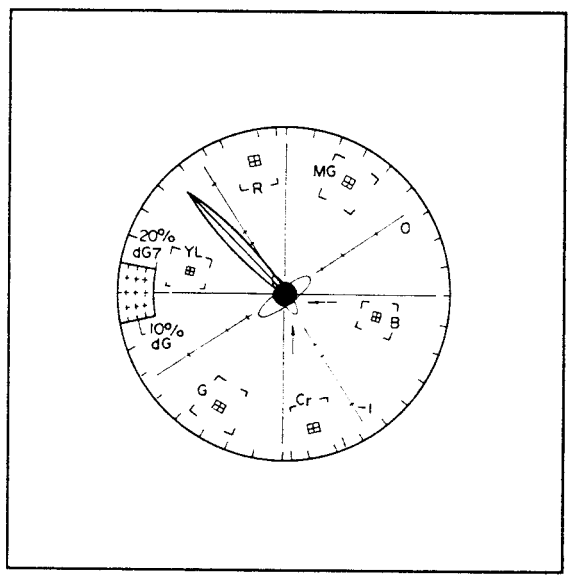


Fig. II-43

5-2-10 Camera microcomputer adjustment

*Notes: 1. Whenever performing a single steP independently, be sure to perform the STEP 7 (E^2 PROM writing)
2. When "8" or "9" flashes on a liquid crystal display, something wrong may by occurred with the equipment. Check the wirings, etc.

·Charts, Measuringequipments, Specifications

STEP	Adjustment items	Charts	M. equipments	Specifications
1	Auto iris	Grayscale(5600°K)	Oscilloscope	Refer to 5-2-4(TP2101=300 ± 10mVp-p)
2	Y level	Grayscale(5600°K)	Oscilloscope	Refer to 5-2-6(TP2202=1000 ± 20 mv, /uminance component)
3	White balance	Grayscale(5600°K)	Vectorscope	Bright dot must be centered.
4	color balance	Color bar(5600°K)	Vectorscope	Phase Gain (against burst) R 102 ± 2° 1.45 ± 0.1 times Ye 166 ± 4° 0.95 ± 0.15 times G 242 ± 8°
5	Black level	Lens capped	———	———
6	White balance	White chart (5600K+ CCA12)	Vectorscope	Bright dot must be centered.

Table II-2

Procedures:
(1) Referring to the Fig. II-25 (PII-11), connect the Camera Mi-Com. Adjuster to the CAMERA MAIN C.B.A.
(2) Perform the steps from 1 through 7 below.

STEP	Adustment items	Procedures		Check items on LED
0	———	0-0	ADJ. SW. "L" state: Camera operates normally	"0" blinks
1	Auto iris	1-0	Set the ADJ. SW. to "H".	"1" blinks
		1-1	1. Shoot the grayscale (5600° K) with a standard anlge of view. 2. Set the EVR. SW. to "H". 3. Push the DATA SW. 4. Push the UP/DOWN SW. to set the level at TP2101 (S/H OUT) to 300 ±10 mVp-p. (Oscilloscope, Fig. II-37)	"1" lights up
2	Y level	2-0	Push the MODE SW.	"2" blinks
		2-1	1. Connect the TP2201 (Y CLIP)and the TP2107 (CAMERA 5V). 2. Shoot the grayscale (5600° K) with a standard angle of view. 3. Set the EVR. SW. to "L". 4. Push the DATA SW. 5. Push the UP/DOWN SW. to set the component of luminance signal at TP2202 (VIDEO) to 1000 ± 20 mV (Oscilloscope, Fig. II-39). 6. Disconnect the TP2201 and 2107.	"2" lignts up

Table II-3(1/2)

STEP	Adustment items	Procedures		Check items on LED
3	White balance	3-0	Push the MODE SW.	"3" blinks
		3-1	1. Shoot the grayscale (5600°K)with a standard angle of view. 2. Push the DATA SW. 3. Set the EVR. SW. to "H" or "L".(Adjust in each state) 4. Push the UP/DOWN SW. to set the bright dot to the center. 5. Push the DATA SW.	"3" blinks (for 2 sec) "3" lignts up "3" blinks (for 2 sec.) "3" lights up
4	Color balance	4-0	Push the MODE SW.	"4" blinks
		4-1	1. Shoot the color bar(5600°K) with a standard angle of view. 2. Push the DATA SW. 3. Set the EVR. SW. to "H" or "L". (Adjust in each state.) 4. Push the UP/DOWN SW. to obtain the specification.	"4" lights up
5	Black level setting (YH, Y IRIS)	5-0	Push the MODE SW.	"5" blinks
		5-1	1. Cap the lens. 2. Push the DATA SW.	"5" blinks (for 2 sec.) "5" light up
6	White balance	6-0	Push the MODE SW.	"6" blinks
		6-1	1. Shoot the white chart(5600°K + CCA12). 2. Push the DATA SW. to confirm the bright dot is on the center.	"6" blinks (for 2 sec) "6" light up
7	E^2 PROM writing	7-0	Push the MODE SW.	"7" blinks
		7-1	Push the DATA SW.	"7" lights up

Table II-3(2/2)

5-2-11 Blooming adjustment

*Notes: 1. Perform this adjustment only when the CCD is replaced. Before the SENSOR C.B.A. is replaced, measure the voltage at pin 14 of CCD (V SUB) in advance. Then, after replacing, adjust the VR2001 so that the same voltage (measured in advance) is obtained.
2. If 300 mV is not obtained at the step 6, reduce the thickness of white paper attached on the rear side of U-pattern chart.

CHART	U-pattern chart(with white paper)
MODE	Iris opened TP2505(IRIS O/C)↔TP2502(5V)
M.EQ.	ND-2.0(DY9 − 2044 − 000) Halogen light, thin white paper fixture(supplement of A1's Service Manual)
TP/TRIG	C-MAIN C.B.A. TP2101(S/H OUT) TP2102(FH/2)
ADJ	SENSOR C.B.A. VR2001(V SUB)
SEPC.	TYPE I* Suppress blooming TYPE II* 1600mV

Procedures:
(1) Open the iris. (TP2505↔ TP2502)
(2) Attach the ND-2.0 filter on the front face of lens with the fixture.
(3) Make a U-pattern chart. Then, attach a thin white paper on its rear side.
(4) Set the U-pattern chart as shown in the Fig.II-45.
(5) Shoot the U-pattern chart with a standard angle of view.
(6) Locate the halogen light so that the signal level at TP2101 becomes 300 mV. At this time, adjust the angle of halogen light so that the waveform in the Fig. II-46 is obtained.
(7) Remove the ND-2.0, and observe the monitor TV. (Fig.II-47)
(8) Turn VR2001 for checking the blooming.

*TYPEI: If the blooming appeared, adjust to a point where the blooming is begun to be suppressed by VR2001.
*TYPEII: If the blooming is not apepared, adjust the signal level at TP2101 to 2000mV by VR2001.

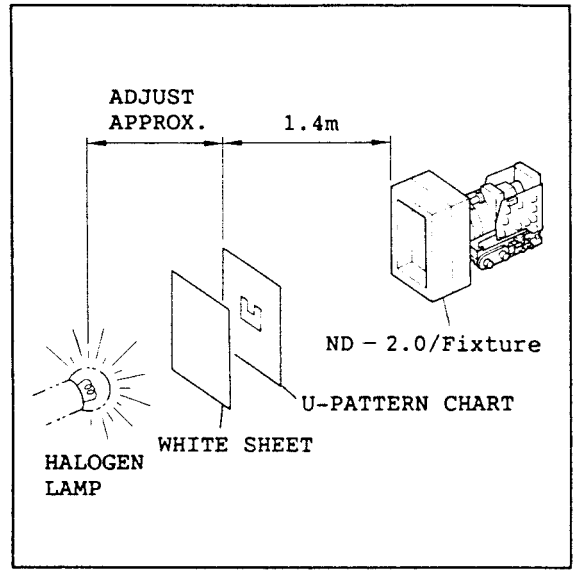


Fig. II-45

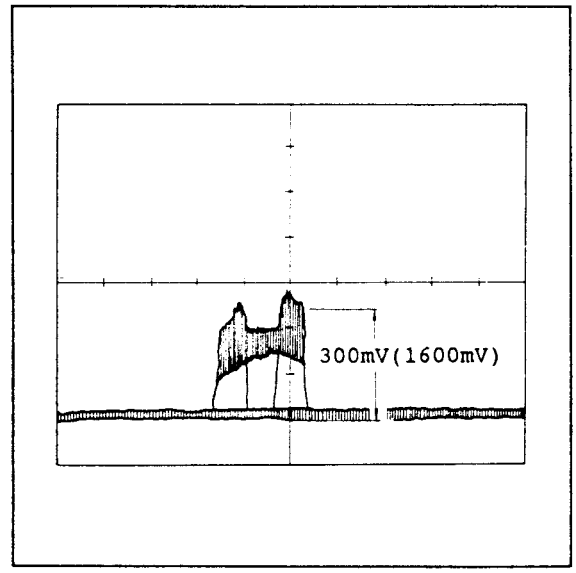


Fig. II-46

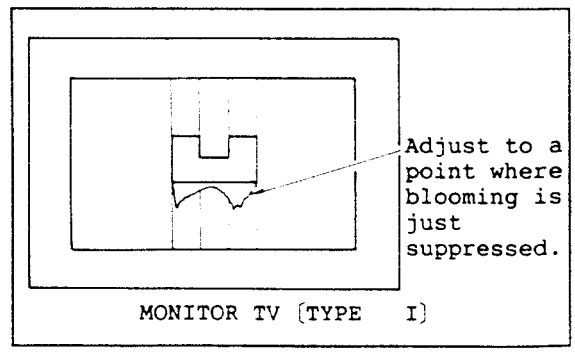


Fig. II-47

5-2-12 Digital memory clock adjustment

M.EQ.	Dititai voltmeter
MODE	Digital title display
TP/TRIG	TP2503(PLL)
ADJ.	DM CBA VC2501(PLL)
SPEC.	2.5 ±0.1V

5-2-13 Character position of character generator adjustment(Auto date title)

MODE	Auto Date display,EE
M.EQ.	EVF
ADJ.	DM CBA VC2502(CG POSITION)
SPEC.	Rightmost digit of counter indication with that of auto date indication.

Procedures:

(1) Display the auto date indication. Then, align the rightmost digit of counter indiccation with that of auto date indication(By turning the VC2502, the auto date digit can be adjusted).

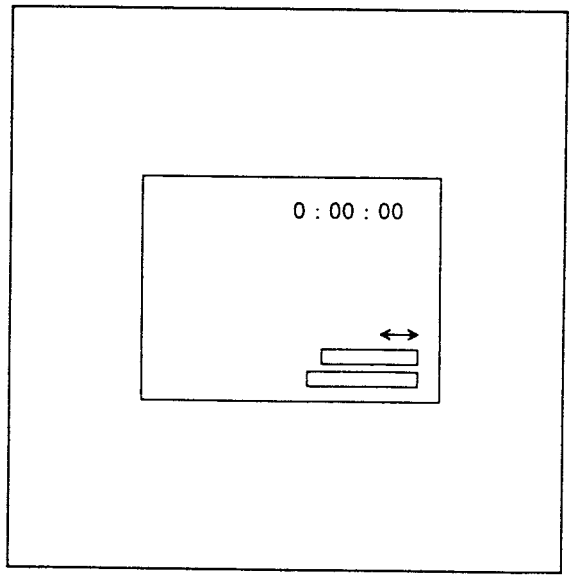


Fig. II-48

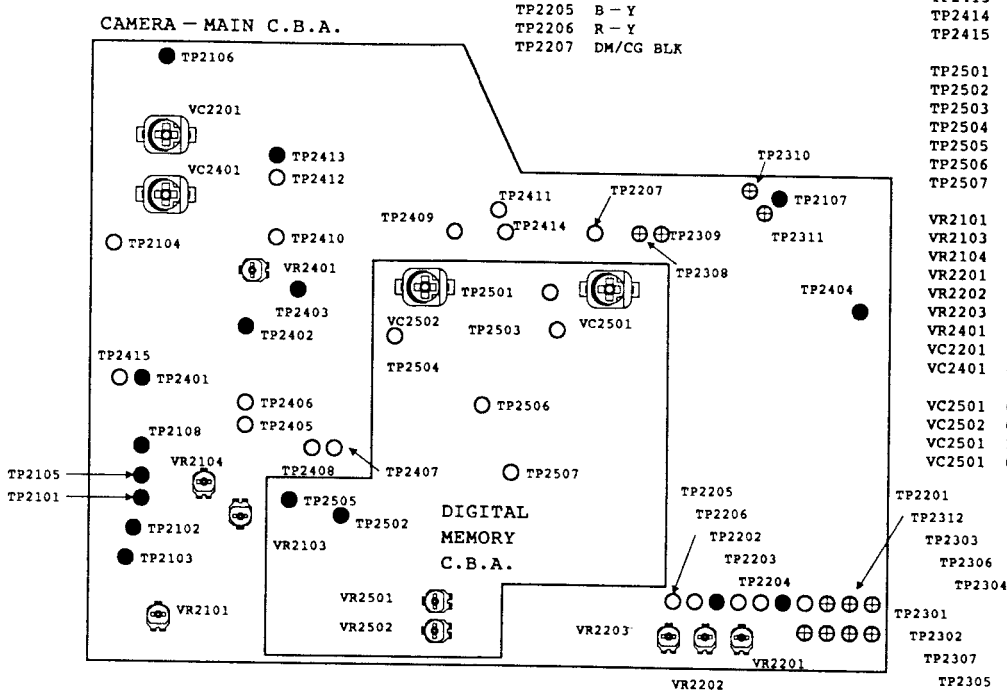
Location of TPS/VRS/VCS

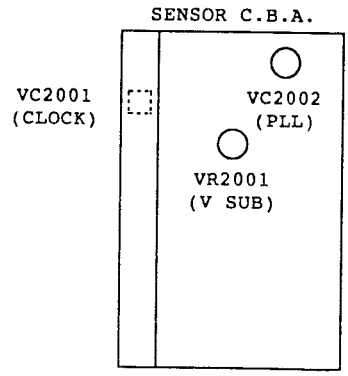
TP2101	S/H OUT	TP2301	ADJ MODE	TP2401	Y
TP2102	FH/2	TP2302	MODE SELECT	TP2402	+1.8V
TP2103	CSP1	TP2303	DATA SET	TP2403	ES OFFSET
TP2104	SC	TP2304	EVR SELECT	TP2404	IRIS POSITION
TP2105	Y	TP2305	EVR UP	TP2405	AF CS
TP2106	PLL	TP2306	EVR DOWN	TP2406	AF CLOCK
TP2107	CAMERA − 5V	TP2307	AWB LOCK	TP2407	DATA OUT
TP2108	C1H	TP2308	D3	TP2408	DATA IN
		TP2309	D2	TP2409	DATA SW
TP2201	Y CLIP	TP2310	D1	TP2410	STB
TP2202	VIDEO	TP2311	D0	TP2411	AF FRAME
TP2203	B − Y C.B.	TP2312	TEST	TP2412	VD
TP2204	R − Y C.B.			TP2413	HD
TP2205	B − Y			TP2414	TEST
TP2206	R − Y			TP2415	AFY
TP2207	DM/CG BLK				

TP2501	GND
TP2502	+5V
TP2503	PLL
TP2504	CLK
TP2505	IRIS O/C
TP2506	S LEVEL
TP2507	CT BLK

VR2101	OB SET
VR2103	FH/2 COMP
VR2104	C1H LEVEL
VR2201	R − Y C.B.
VR2202	B − Y C.B.
VR2203	BURST PHASE
VR2401	ES OFFSET
VC2201	SC − 90
VC2401	CLOCK

VC2501	OFFSET
VC2502	GAIN
VC2501	PLL
VC2501	CG POSITION





6. Electrical Adjustments (Recorder sections)

6-1 VIDEO 5V adjustment

MODE	EE
M.EQ.	Ditital voltmeter
TP/TRIG	R-MAIN CBA, Emitter Q153
ADJ.	R-MAIN CBA VR101(VIDEO 5V)
SPEC.	5.1 ± 0.05V

6-2 Capstan FG offset adjustment

SIGNAL	Arbitrary
MODE	REC
TP/TRIG	R-MAIN CBA TP619(CAP FG)
ADJ.	R-MAIN CBA VR601(C-FG OFFSET)
SPEC.	Duty ratio 50% ± 5%

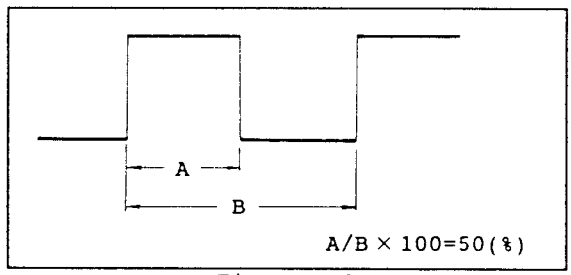


Fig. II-49

6-3 Switching point adjustment

SIGNAL	Alignment tape E(DY9-1062-000)
MODE	PB
TP/TRIG	CH-1:Video output terminal CH-2:Switching pulse [Extension calble G (Green)]
ADJ.	C-KEY CBA VR550(SWP)
SPEC.	7.0 ± 1.0H

Procedures:

(1) Using the wireless remote controller, set the tservice mode.

(2) Adjust the switching point by VR550.

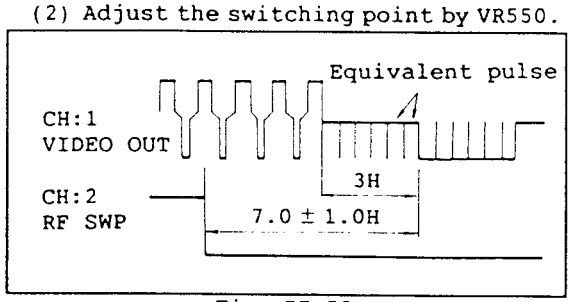


Fig. II-50

6-4 Characteristic of playback frequency adjustment

SIGNAL	V sweep master(DY9-1113-500)
MODE	PB
M.EQ.	Oscilloscope
TP/TRIG	Extension cable G CH-1:PB RF(Yellow) CH-2:1/2 SWP(Red)
ADJ.	R-MAIN CBA VR306(1a) R-MAIN CBA VR305(1b) R-MAIN CBA VR307(2a) R-MAIN CBA VR308(2b)
SPEC.	3.58MHz level: 5.5MHz level → 4:3

Procedures:

(1) Connect the extension cable G to the test point.

(2) Observing the waveform levels of 3.58 MHz and 5.5 MHz (PB-RF output), adjust their ratio to 4:3.

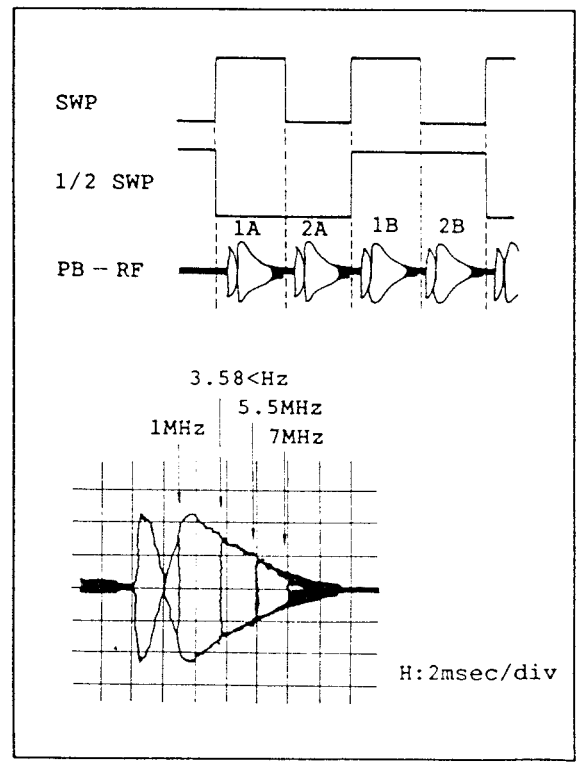


Fig. II-50

6-5 Rec. AGC adjustment

SIGNAL	100% white video signal
MODE	REC
M.EQ.	Oscilloscope
TP/TRIG	R-MAIN CBA IC106 Pin 49 or TPⒶ
ADJ.	R-MAIN CBA VR115(REG AGC)
SPEC.	0.50 ± 0.025Vp-p

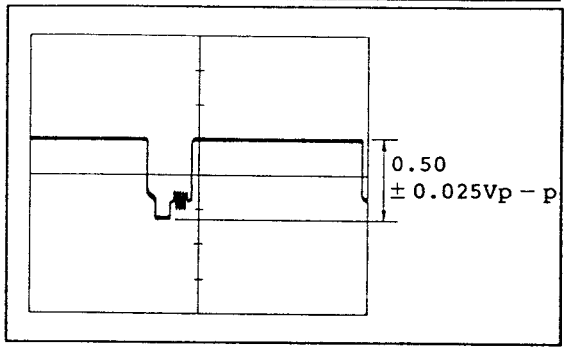


Fig. II-52

6-6 YC separation adjustment

SIGNAL	Colorbar
MODE	REC
M.EQ.	Oscilloscope
TP/TRIG	R-MAIN CBA IC106 Pin 25 or TPⒷ
ADJ.	R-MAIN CBA VR107(Y/C SEP.)
SPEC.	Minimize the residual chrominance component

Procedures:

(1) Connect the pin 39 of IC106 (R-MAIN CBA) to ground via a 10 μF/16V capacitor.

(2) Minimize the residual chrominance component by turning the VR107 (R-MAIN CBA)

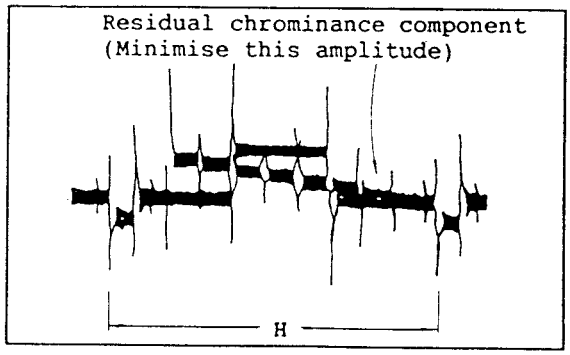


Fig. II-53

6-7 VIDEO level ajustment

SIGNAL	100% white video signal
MODE	REC
M.EQ.	Oscilloscope
TP/TRIG	R-MAIN CBA IC106、Pin 53
ADJ.	R-MAIN CBA VR112(Y LEVEL)
SPEC.	0.50 ± 0.025Vp-p

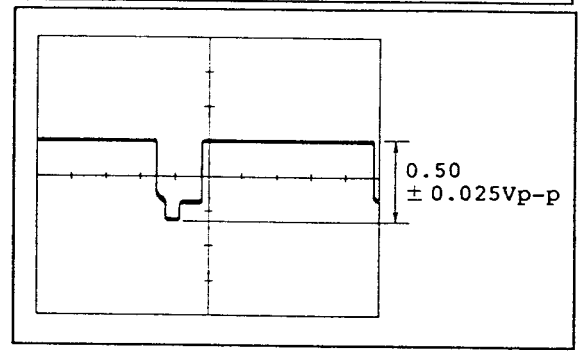


Fig. II-54

6-8 PB Y level adjustment

SIGNAL	100% white video signal (self-record tape)
MODE	PB
M.EQ.	Oscilloscope
TP/TRIG	Video output terminal (75 Ω terminated)
ADJ.	R-MAIN CBA VR114(PB Y level)
SPEC.	1.00 ± 0.05Vp-p

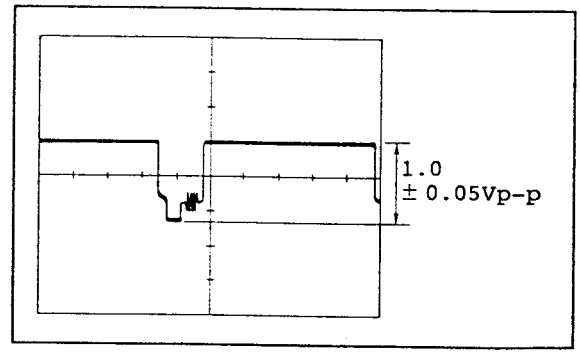


Fig. II-55

6-9 Y FM carrier adjustment

SIGNAL	No signal
MODE	REC(SP)
M.EQ.	Frequency counter (Connect via an oscilloscpe)
TP/TRIG	R-MAIN CBA, Emitter Q119
ADJ.	R-MAIN CBA VR108(Y CAR.)
SPEC.	4.39 ± 0.04MHz

6-10 Y FM deviation adjustment

*Note: Use a signal waveform having the shortest cycle.

SIGNAL	100% white
MODE	REC
M.EQ.	Oscilloscope
TP/TRIG	R-MAIN CBA, Emitter Q118
ADJ.	R-MAIN CBA VR109(Y DEV.)
SPEC.	0.37 μ sec/2cycle(5.4MHz apprpx.)

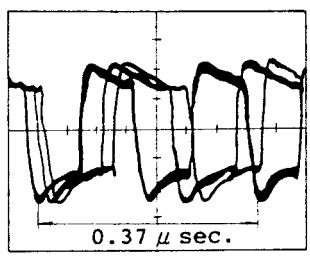


Fig. II-56

6-11 REC Y level adjustment

SIGNAL	No signal
MODE	REC
M.EQ.	Oscilloscope
TP/TRIG	R-MAIN CBA TP©
ADJ.	R-MAIN CBA VR106(REC Y)
SPEC.	135 ± 5mV

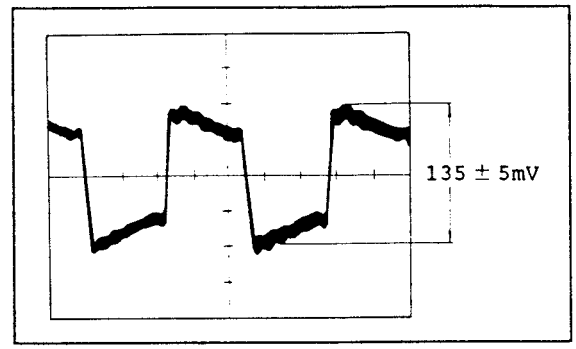


Fig. II-57

6-12 REC C level adjustment

Note: Be careful not to shortcircuit a shield plate and TP Ⓓ.
To prevent the shortcircuiting, insulate the shield plate the shield plate by attaching a piece of tape or equivalent.

SIGNAL	Colorbar signal
MODE	REC
M.EQ.	Oscilloscope
TP/TRIG	R-MAIN CBA TP Ⓓ
ADJ.	R-MAIN CBA VR102(REC C)
SPEC.	240 ± 10mV

Procedure:
(1) Adjust the flat portion of red (chroma signal) to the specified value by the VR102.

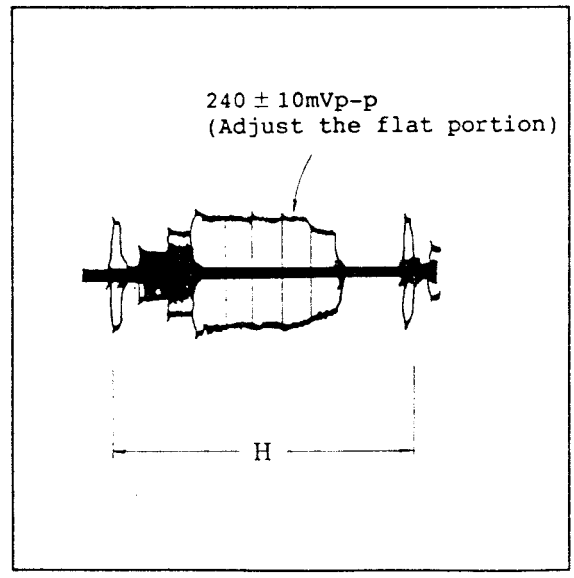


Fig. II-58

6-13 REC C preset adjustment

*Note: Confirm that the playbacked picture has no flicker. If the flicker appears, adjust the head which has an exterme variation in playback RF signal so that the variation is suppressed..

SIGNAL	Colorbar	
MODE	REC	
M.EQ.	Oscilloscope	
TP/TRIG	CH-1	:TP302(1a)
	(1:1 probe)	:TP301(1b)
		:TP303(2a)
		:TP304(2b)
	CH-2	:Extension cable G(Red)
	(10:1 probe)	(1/2 RF-SWP)
ADJ.	R-MAIN CBA	VR302(1a)
		VR301(1b)
		VR303(2a)
		VR304(2b)
SPEC.	30 ± 2mVp-p	

Procedures:

(1) Connect the pin 24 (REC ATF) of IC502 (R-MAIN CBA) to ground with a jumper wire.

(2) Adjust each signal waveform to 30 ± 2 mVp-p.

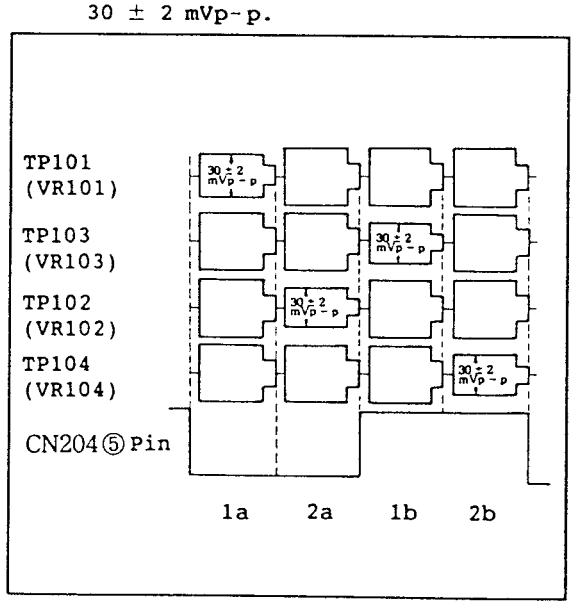


Fig. II-59

6-14 REC ATF level adjustment

SIGNAL	No signal
MODE	REC
M.EQ.	Oscilloscope
TP/TRIG	R-MAIN CBA TPⒺ
ADJ.	R-MAIN CBA VR111(REC ATF)
SPEC.	200 ± 5mVp-p

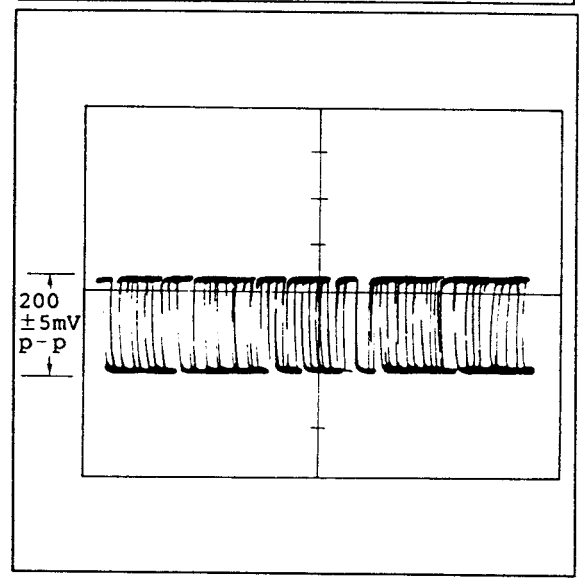


Fig. II-60

6-15 REC AUDIO level adjustment

SIGNAL	No signal
MODE	REC
M.EQ.	Oscilloscope
TP/TRIG	R-MAIN CBA TPⓅ
ADJ.	R-MAIN CBA VR103(REC A-FM)
SPEC.	100 ± 5mVp-p

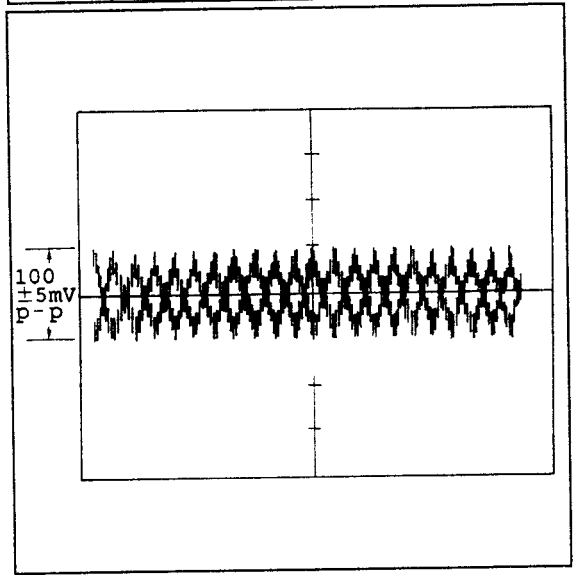


Fig. II-61

6-16 Undercut adjustment

MODE	REC
M.EQ.	Digital voltmeter, Monitor TV
ADJ.	AUDIO-FM CBA VR809(BATT.)
SPEC.	80 ± 01H/5.65 ± 0.15

*Note: After assembling, perform the adjustment for checking (peel off the seel on the bottom face of unit).

Procedures:

(1) In the REC mode, set the voltage source to 5.65V.

(2) Set the service mode by the wireless remote controller. Then, adjust the value on a monitor TV to the specified value by the VR809.

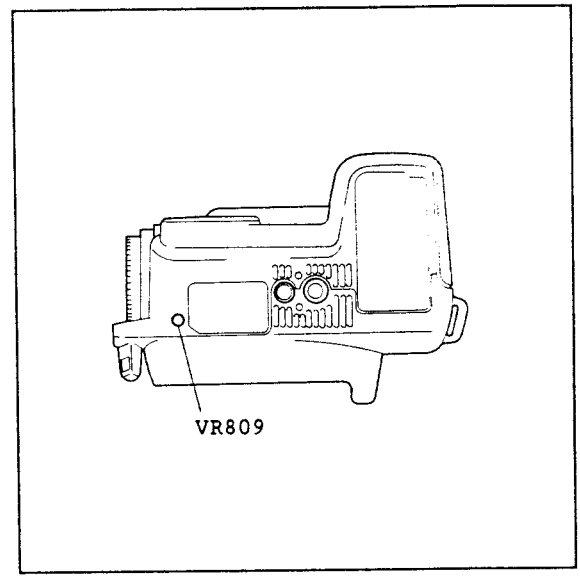


Fig. II-62

6-17 Character position of character generaton adjustment (Recorder)

SIGNAL	Colorbar (self-record tape)
MODE	PB
M.EQ.	Monitor TV
TP/TRIG	C-KEY C.B.A. VC551(CG SIZE)
SPEC.	Lowest digit locates in the middle of red and blue bars.

*Note: To display the characters, connect the EVF and use a remote wireless controller.

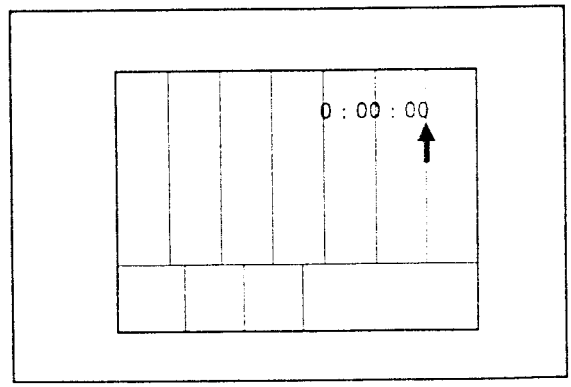


Fig. II-63

6-18 Chrominance phase adjustment

SIGNAL	Self-recorded color bar
MODE	SEARCH
M.EQ.	Monitor TV
ADJ.	R-MAIN C.B.A. VR113(JOG BURST)
SPEC.	Reduce black noise bars appearing under each white noise bars as possible.

7. Electrical Adjustment of EVF

7-1 Free-run requency adjustment

SIGNAL	No signal(Terminal-opened)
MODE	EE
M.EQ.	Oscilloscope,Frequency counter
TP/TRIG	EVF1 C.B.A. TP2913(HD)
ADJ.	EVF1 C.B.A. VR2902(H.PHASE)
SPEC.	15.90 ± 0.05KHz

7-2 Vertical amplitude adjustment

SIGNAL	Cricle(round)subject
MODE	EE
M.EQ.	EVF,Monitor TV
ADJ.	EVF/C.B.A. VR2901(V-SIZE)
SPEC.	Free from distortion. Absence of incongruity in comparison with monitor TV screen.

Procedures:

(1) Shoot a circle figure subject fully in the screen.
(2) Adjust the VR2901 so that there is no incongruity in comparison with the monitor TV screen.

7-3 Rotation and centering adjustment

MODE	EE
M.EQ.	Oscilloscope
ADJ.	Deflection yoke,Centering magnet
SPEC.	Screen is not tilted and is located right at the center.

Procedures:

(1) Choose a subject for judgement of centering and tilting. Then shoot it.
(2) Loosen the fastening ring to turn the deflection yoke.
(3) Turn the deflection yoke to correct the tilting of subject.

*Note: Move the deflection yoke completely toward the CRT screen.

(4) Tighten the fastening ring.

*Note: The fastening ring must be tightened so that the centering magnet can still be moved.

(5) Adjust the centering magnet so as to locate the subject image at the center.
(6) Tighten the fastening ring completely.
(7) Fix the centering magnet by applying paint or the like. (at 180° interval, 2 points)

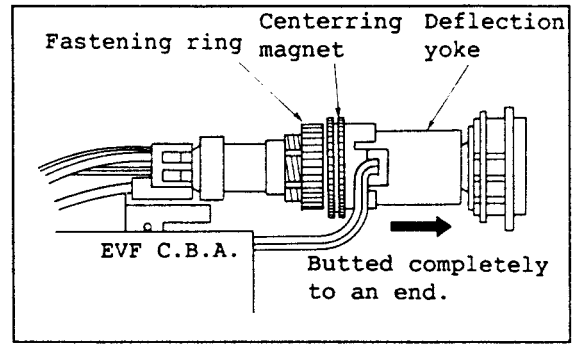


Fig. II-64

7-4 Brightness adjustment

SIGNAL	Self-recording/playback tape(grayscale)
MODE	PLAY
M.EQ.	EVF
ADJ.	EVF2 C.B.A. VR2921(BRIGHT)
SPEC.	distinhuishable down to 11th step grayscale

7-5 Focus adjustment

MODE	Lens-capped(character indication)
M.EQ.	EVF
ADJ.	GRIP C.B.A. VR2920(FOCUS)
SPEC.	EVF character under optimum focus

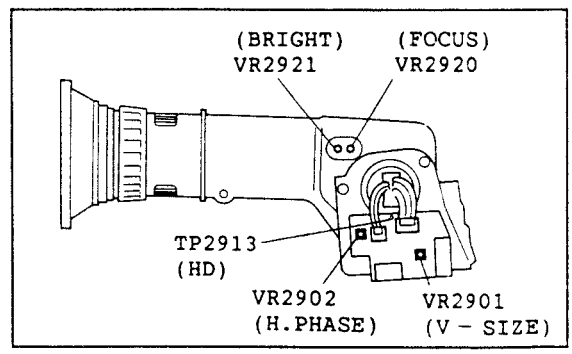
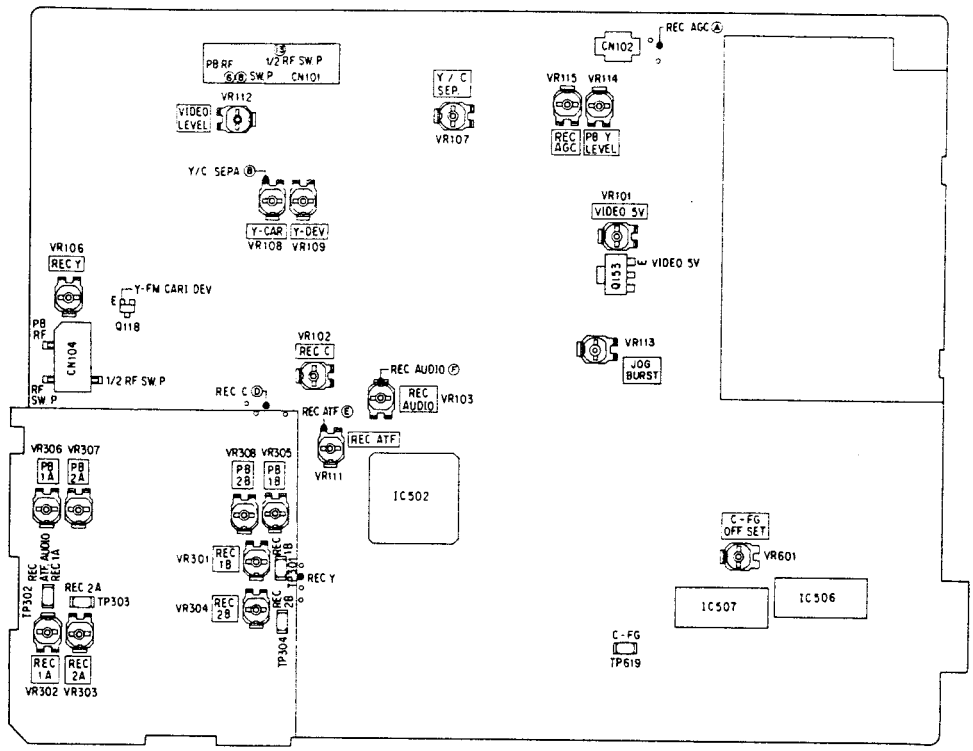


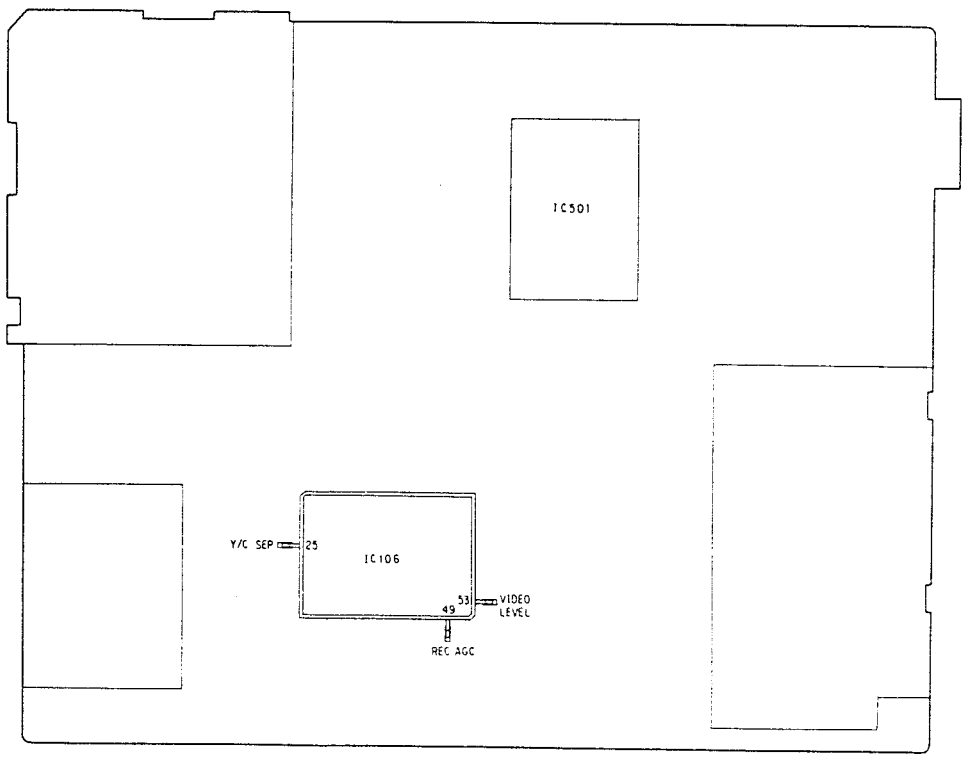
Fig. II-65

LOCATION OF TP/VR/VC

RECORDER MAIN C.B.A. (Compornent Side)

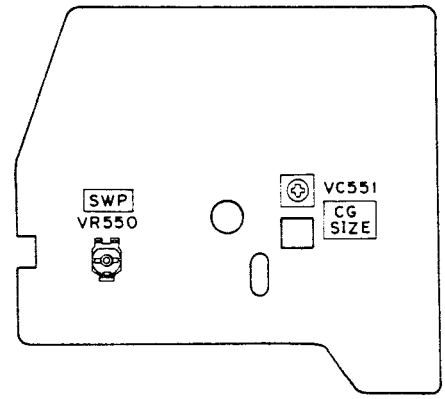


RECORDER MAIN C.B.A. (Soldering Side)



PAL (A10E,F)

CAMERA – KEY C.B.A.



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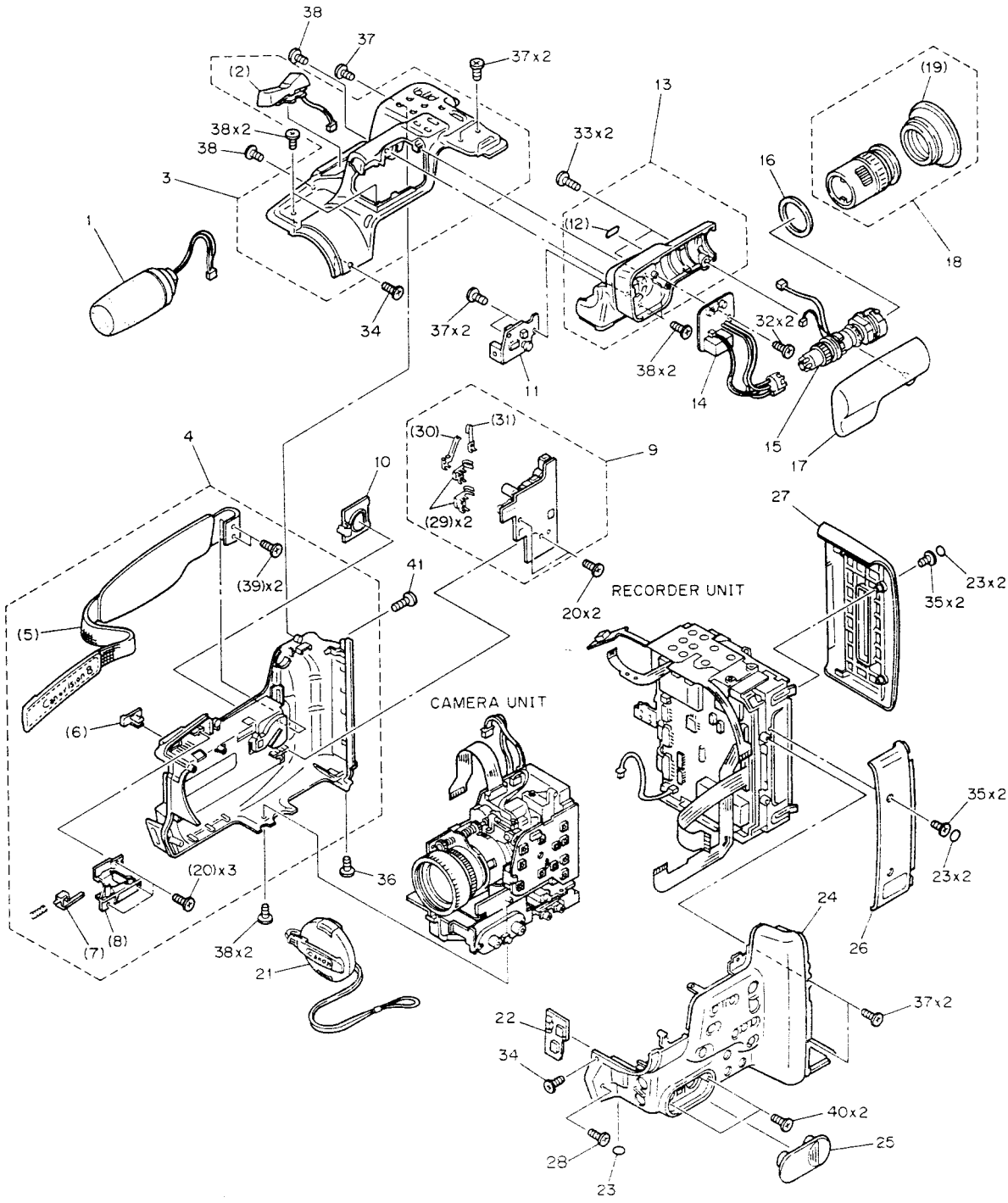
1. ⚠ が付いている部品は安全上重要な部品です。交換時は、必ず指定の部品を使用して下さい。

2. コネクターのシンボルNo.は、コネクターに捺印されているNo.と異なりますので、基板間結線図にて、シンボルNo.を確認して下さい。

1. ESPECIALLY CRITICAL PARTS IN THE POWER CIRCUIT BLOCK SHOULD NOT BE REPLACED WITH OTHER MAKES.
   CRITICAL PARTS ARE MARKED WITH ⚠ IN THIS ELECTRICAL PARTS LIST.

2. THE NUMBERS INDICATED ON THE CONNECTORS DO NOT CORRESPOND TO THE SYMBOL NUMBERS. PLEASE CHECK THE CORRECT SYMBOL NUMBERS OF THE CONNECTORS ON THE INTERCONNECTION SCHEMATIC DIAGRAM.

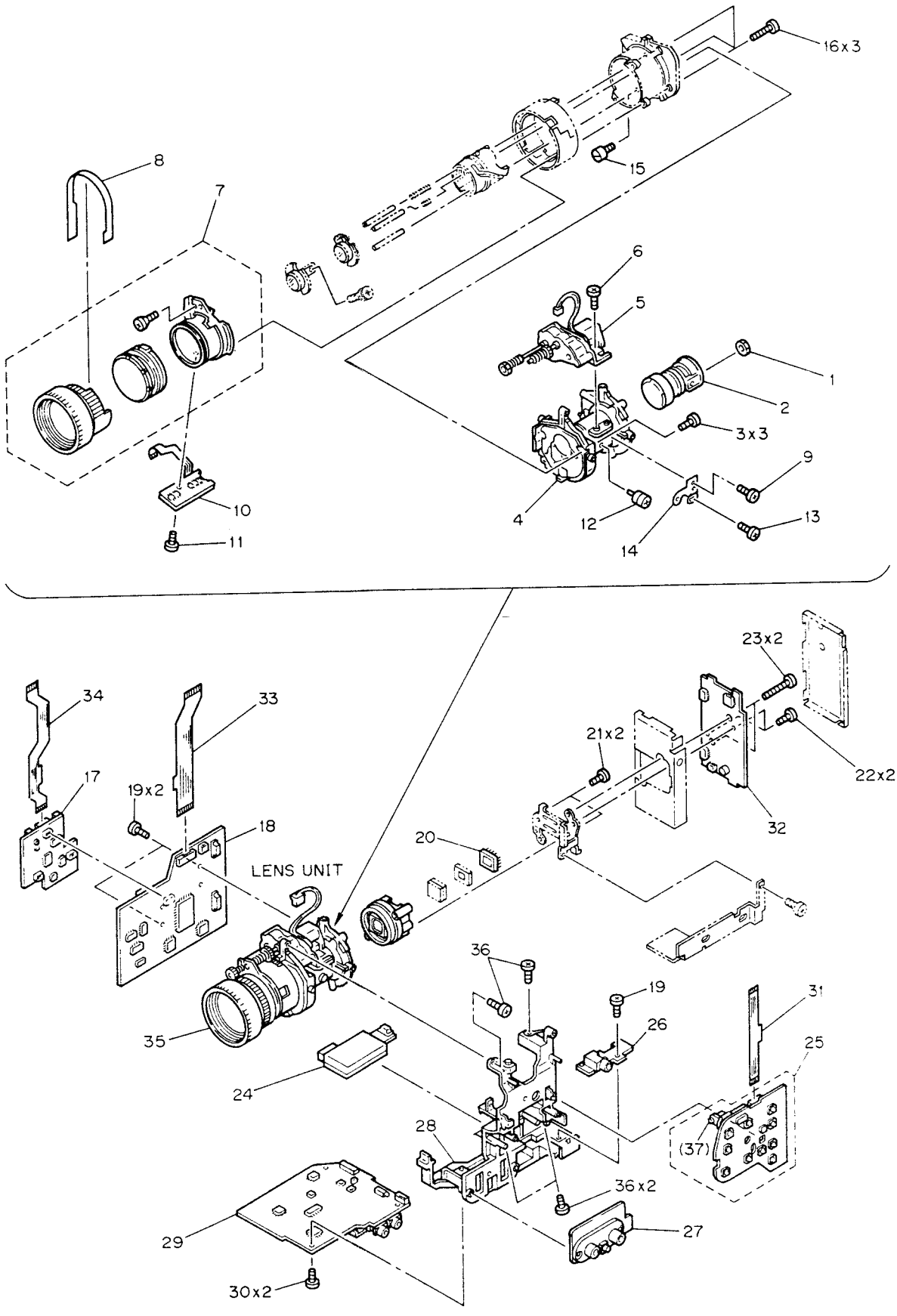
Casing Parts Section



MECHANICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	DH9 - 0517 - 000 000	B	1	MICROPHONE	
2	DG1 - 1195 - 000 000	B	1	ZOOM SWITCH ASS'Y	
3	DG1 - 1469 - 000 000	B	1	UPPER COVER ASS'Y	A10E ONLY
	DG1 - 1488 - 000 000	B	1	UPPER COVER ASS'Y	A10F ONLY
4	DY2 - 1339 - 000 000	B	1	LEFT COVER ASS'Y	A10E ONLY
	DY2 - 1340 - 000 000	B	1	LEFT COVER ASS'Y	A10F ONLY
5	DA1 - 4197 - 000 000	B	1	STRAP, HAND	
6	DA1 - 4188 - 000 000	B	1	KNOB, BATTERY EJECT	
7	DA1 - 4189 - 000 000	C	1	LEVER, BATTERY	
8	DA1 - 4190 - 000 000	B	1	HOOK, BATTERY	
9	DG1 - 1478 - 000 000	C	1	BATTERY FUSE C.B.A.	
10	DA1 - 4230 - 000 000	B	1	COVER, BATTERY	
11	DG1 - 1479 - 000 000	C	1	E.V.F.1 C.B.A.	
12	DA1 - 4243 - 000 000	B	1	SEAL	
13	DY2 - 1322 - 000 000	B	1	LEFT COVER, E.V.F.	
14	DG1 - 1452 - 000 000	C	1	E.V.F.2 C.B.A.	
15	DG1 - 1480 - 000 000	C	1	CRT ASS'Y	
16	DA1 - 4240 - 000 000	B	1	RING, RUBBER	
17	DY2 - 4246 - 000 000	B	1	RIGHT COVER, E.V.F.	A10E ONLY
	DY2 - 4247 - 000 000	B	1	RIGHT COVER, E.V.F.	A10F ONLY
18	DY2 - 1328 - 000 000	B	1	FINDER ASS'Y	
19	DA1 - 4002 - 000 000	B	1	CUP, EYE	
20	XA9 - 0448 - 000 000	F	5	SCREW, CROSS - RECESS, PH	
21	DG1 - 1307 - 000 000	B	1	CAP, LENS	
22	DG1 - 1448 - 000 000	C	1	FRONT KEY C.B.A.	
23	DA1 - 2514 - 000 000	B	5	SEAL	
24	DY2 - 1337 - 000 000	B	1	RIGHT COVER ASS'Y	A10E ONLY
	DY2 - 1338 - 000 000	B	1	RIGHT COVER ASS'Y	A10F ONLY
25	DA1 - 4198 - 000 000	B	1	CAP, AV	
26	DY2 - 1330 - 000 000	B	1	CASSETTE COVER, LS	
27	DG1 - 1471 - 000 000	B	1	COVER, CASSETTE	A10E ONLY
	DG1 - 1489 - 000 000	B	1	COVER, CASSETTE	A10F ONLY
28	DA1 - 4249 - 000 000	F	2	SCREW, CROSS - RECESS, PH	
29	DA1 - 4194 - 000 000	C	2	TERMINAL, BATTERY	
30	DA1 - 4196 - 000 000	C	1	TERMINAL (2)	
31	DA1 - 4195 - 000 000	C	1	TERMINAL (1)	
32	DA1 - 4248 - 000 000	F	2	SCREW, CROSS - RECESS	
33	XA9 - 0449 - 000 000	F	2	SCREW, CROSS - RECESS, PH	
34	XA9 - 0491 - 000 000	F	2	SCREW, CROSS - RECESS, PH	
35	DA1 - 4160 - 000 000	F	4	SCREW	
36	DA1 - 4250 - 000 000	F	1	SCREW, CROSS - RECESS	
37	XA4 - 9200 - 409 000	F	7	SCREW, CROSS - RECESS, PH	
38	XA4 - 9200 - 509 000	F	8	SCREW, CROSS - RECESS, PH	
39	XA9 - 0435 - 000 000	F	2	SCREW, CROSS - RECESS, PH	
40	XA4 - 9200 - 609 000	F	2	SCREW, CROSS - RECESS, PH	
41	DA1 - 4249 - 000 000	F	2	SCREW, CROSS - RECESS, PH	

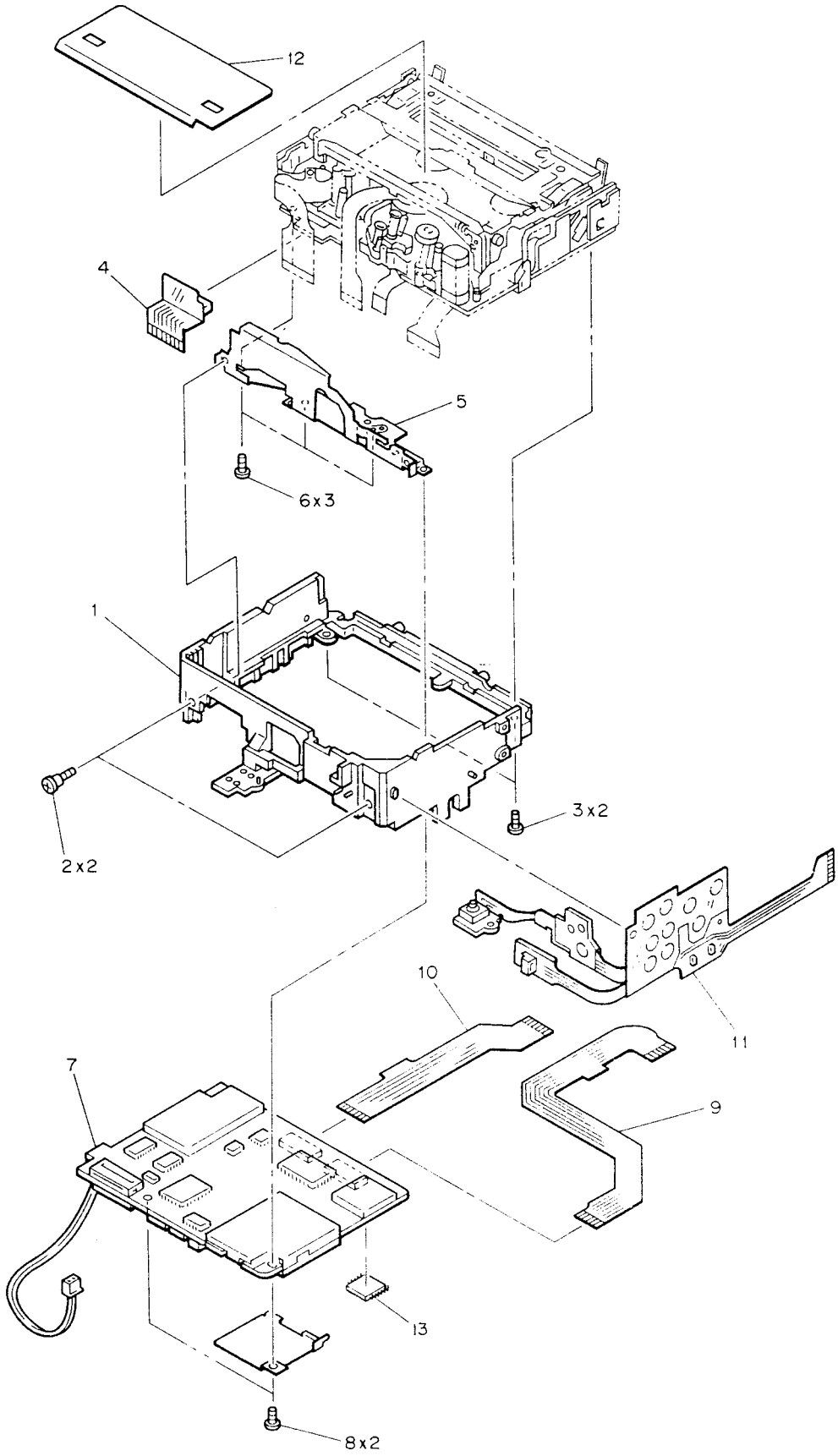
Lens/Camera Unit Section



MECHANICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	XB7 - 2200 - 209 000	F	1	NUT	
2	YG9 - 5006 - 000 000	C	1	RELAY LENS ASS'Y	
3	XA4 - 9170 - 807 000	F	3	SCREW	
4	YG9 - 5072 - 000 000	C	1	IG METER ASS'Y	
5	YH7 - 0025 - 000 000	C	1	MOTOR ASS'Y	
6	X91 - 1738 - 350 000	F	1	SCREW	
7	DY1 - 7143 - 000 000	C	1	FOCUS LENS ASS'Y	
8	YA1 - 0224 - 000 000	C	1	SHEET, DISTANCE	
9	X91 - 2035 - 770 000	F	1	SCREW	
10	YG9 - 5063 - 000 000	C	1	ENCODER C.B.A.	
11	YA1 - 0026 - 000 000	F	1	SCREW	
12	DA7 - 2075 - 000 000	C	1	ROLLER, ECCENTRIC	
13	YA1 - 0028 - 000 000	F	1	SCREW	
14	YA1 - 0012 - 000 000	C	1	BASE, ECCENTRIC	
15	YA1 - 0223 - 000 000	C	1	HOLDER, PCB	
16	YA1 - 0099 - 000 000	F	3	SCREW	
17	DG1 - 1477 - 000 000	C	1	DIGITAL MEMORY C.B.A.	
18	DG1 - 1476 - 000 000	C	1	CAMERA MAIN C.B.A.	
19	XA4 - 9200 - 409 000	F	3	SCREW, CROSS - RECESS, PH	
20	DH4 - 0277 - 000 000	B	1	CCD MN3749 FC	
21	XA4 - 9200 - 509 000	F	2	SCREW, CROSS - RECESS, PH	
22	XA1 - 7200 - 307 000	F	2	SCREW, CROSS - RECESS, PH	
23	XA9 - 0536 - 000 000	F	2	SCREW, CROSS - RECESS	
24	DH3 - 0019 - 000 000	C	1	DC/DC CONVERTER	
25	DG1 - 1474 - 000 000	C	1	CAMERA KEY C.B.A.	A10E ONLY
	DG1 - 1485 - 000 000	C	1	CAMERA KEY C.B.A.	A10F ONLY
26	DG1 - 1445 - 000 000	C	1	MIC JACK C.B.A.	
27	DG1 - 1444 - 000 000	C	1	AV JACK C.B.A.	
28	DA1 - 4211 - 000 000	C	1	HOLDER, CAMERA	
29	DG1 - 1651 - 000 000	C	1	AUDIO - FM C.B.A.	
30	XA4 - 8200 - 509 000	F	2	SCREW, CROSS - RECESS, FCH	
31	DH2 - 1364 - 000 000	C	1	PRINTED CORD	
32	DG1 - 1475 - 000 000	C	1	SENSOR C.B.A.	
33	DH2 - 1361 - 000 000	C	1	PRINTED CORD	
34	DH2 - 1363 - 000 000	C	1	PRINTED CORD	
35	DG1 - 1360 - 000 000	C	1	LENS UNIT	
36	XA4 - 9200 - 609 000	F	4	SCREW, CROSS RECESS, PH	
37	DF1 - 0902 - 000 000	C	1	LED ASS'Y	

Recorder Unit Section

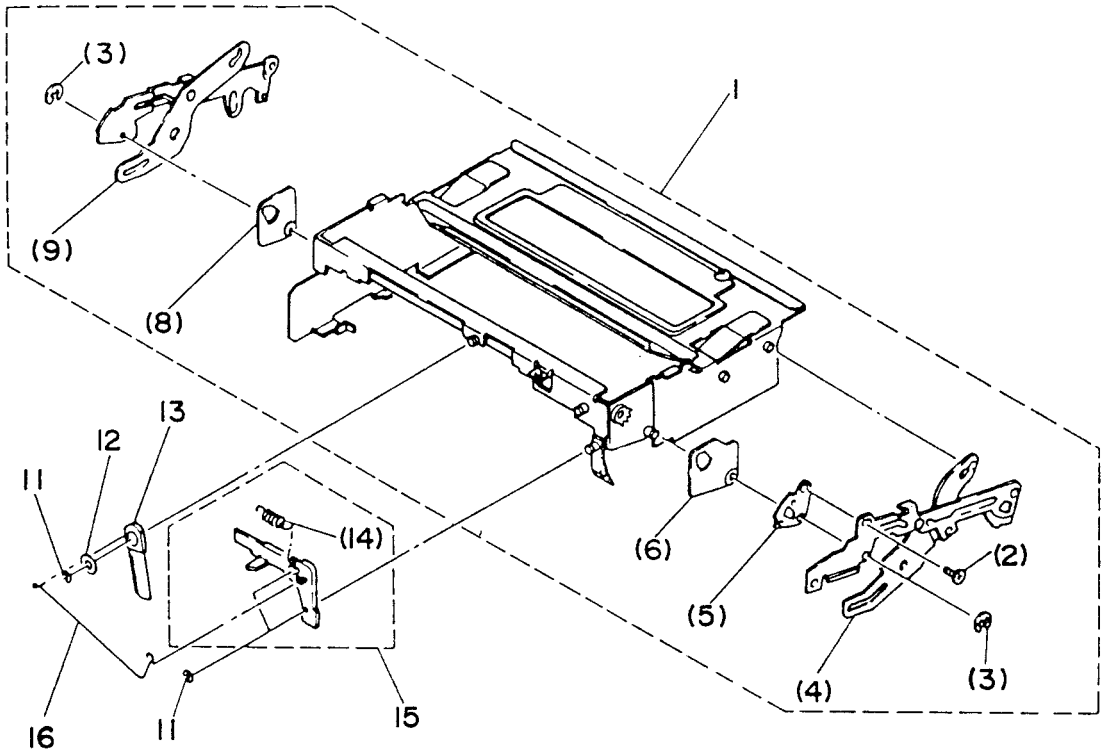


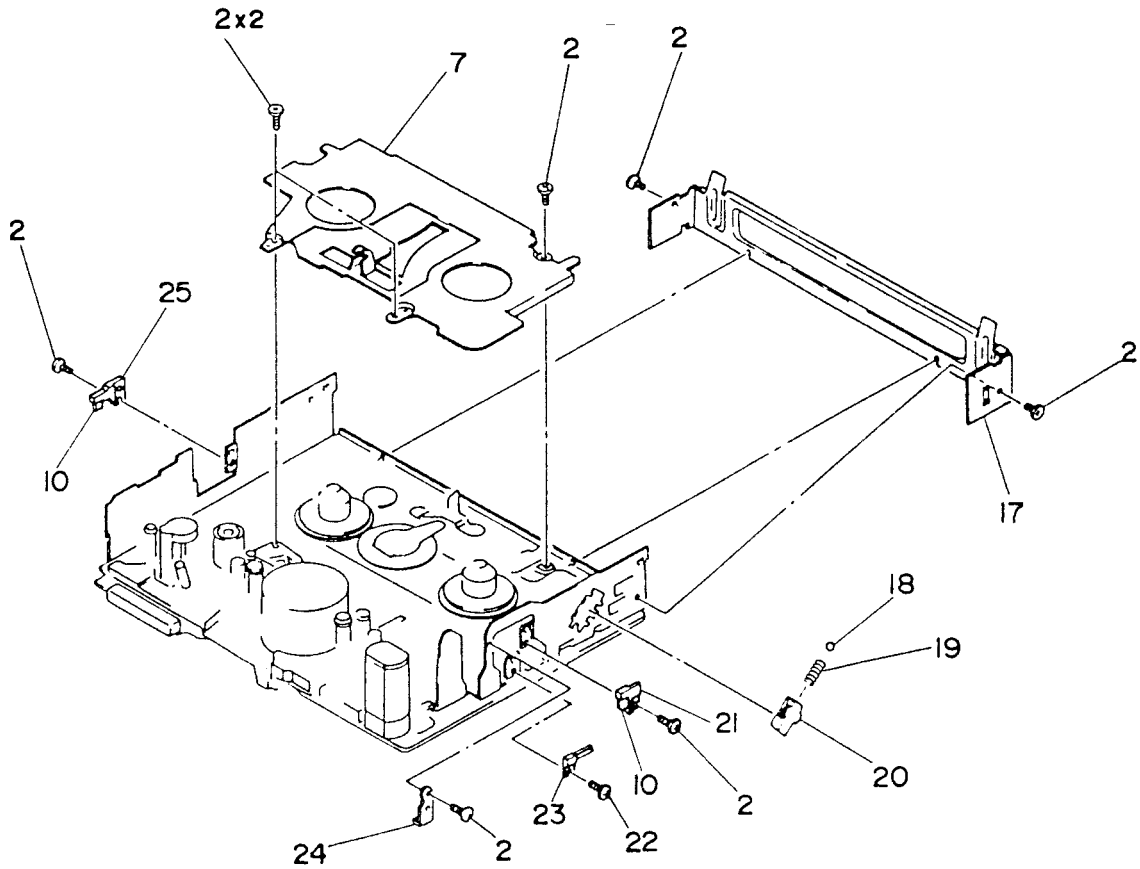
MECHANICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	DA1 - 4251 - 000 000	C	1	HOLDER, RECORDER (A)	
2	DA1 - 1948 - 000 000	F	2	SCREW	
3	XA1 - 7140 - 307 000	F	2	SCREW, CROSS - RECESS, PH	
4	DF1 - 0901 - 000 000	C	1	FLEXIBLE CORD ASS'Y	
5	DA1 - 4252 - 000 000	C	1	HOLDER, RECORDER (B)	
6	XA1 - 7140 - 207 000	F	3	SCREW, CROSS - RECESS, PH	
7	DG1 - 1473 - 000 000	C	1	RECORDER MAIN C.B.A.	
8	XA1 - 7200 - 307 000	F	2	SCREW, CROSS - RECESS, PH	
9	DH2 - 1360 - 000 000	C	1	PRINTED CORD	
10	DH2 - 1361 - 000 000	C	1	PRINTED CORD	
11	DG1 - 1436 - 000 000	C	1	RECORDER KEY C.B.A.	
12	DA1 - 4199 - 000 000	C	1	COVER, DRUM	
13	DH4 - 0328 - 000 000	C	1	JOG C.B.A.	

Cassette Compartment Holder Ass'y

No. 4



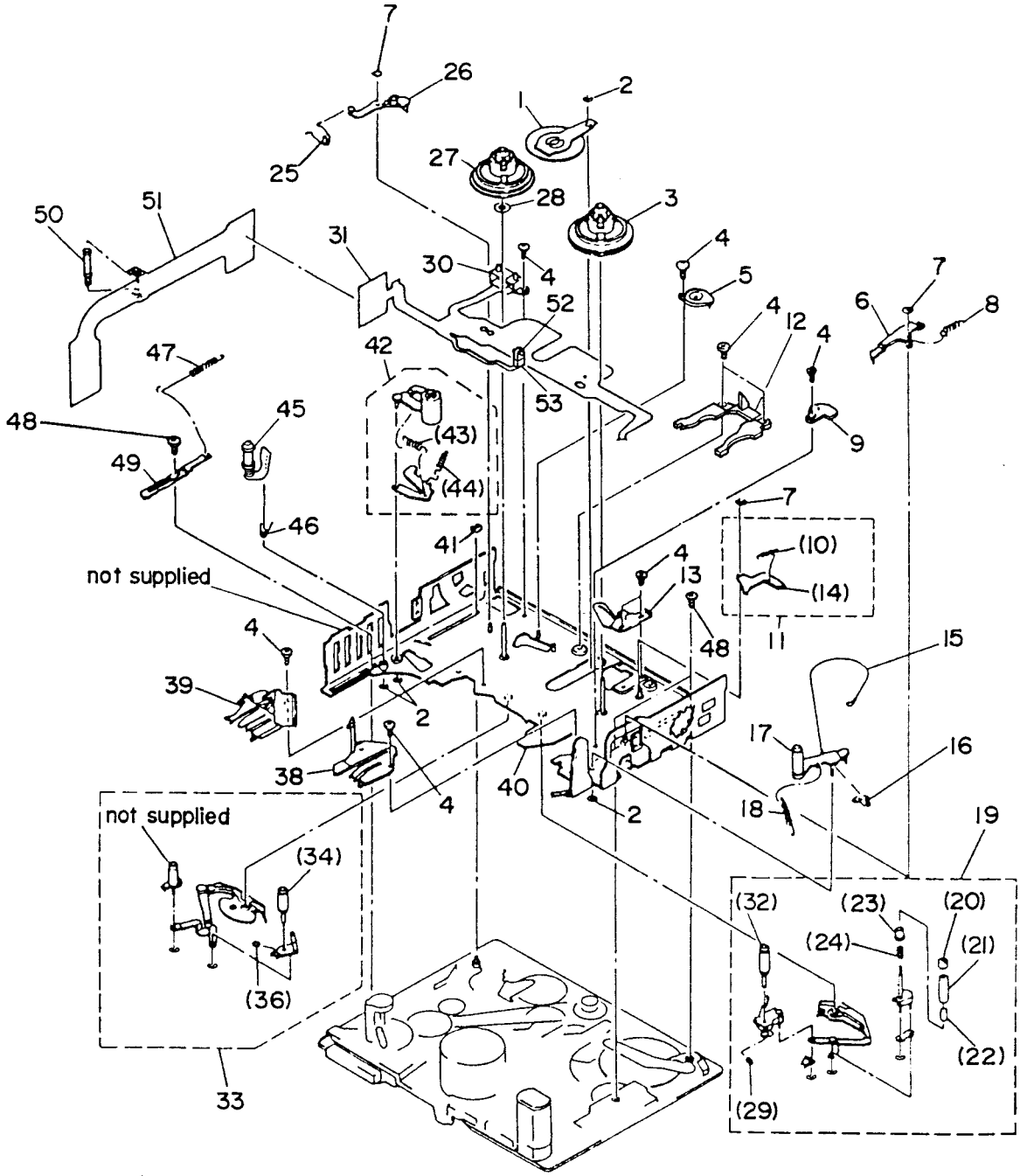


MECHANICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	DY4 - 2762 - 000 000	C	1	CASSETTE COMPARTMENT ASS'Y	
2	DY4 - 2828 - 000 000	F	9	SCREW	
3	DY4 - 2445 - 000 000	F	2	E RING	
4	DY4 - 2876 - 000 000	C	1	ARM ASS'Y, F	
5	DY4 - 2806 - 000 000	C	1	PLATE, ADJUST (C)	
6	DY4 - 2833 - 000 000	C	1	PLATE (S)	
7	DY4 - 2846 - 000 000	C	1	BASE, LED	
8	DY4 - 2832 - 000 000	C	1	PLATE (T)	
9	DY4 - 2875 - 000 000	C	1	ARM ASS'Y, T	
10	Y22 - 8182 - 000 000	B	2	PHOTO TRANSISTOR PT4850F	
11	DY4 - 2788 - 000 000	F	3	WASHER	
12	DY4 - 2851 - 000 000	F	1	WASHER	
13	DY4 - 2775 - 000 000	C	1	PROTECTOR ASS'Y	
14	DY4 - 2790 - 000 000	C	1	SPRING, COIL	
15	DY4 - 2764 - 000 000	C	1	ARM ASS'Y TP	
16	DY4 - 2850 - 000 000	C	1	BAR, JOINT	
17	DY4 - 2862 - 000 000	C	1	FRAME	
18	DY4 - 2865 - 000 000	C	1	STEEL BALL	
19	DY4 - 2799 - 000 000	C	1	SPRING, COIL	
20	DY4 - 2805 - 000 000	C	1	HOLDER, BS	
21	DY4 - 2804 - 000 000	C	1	HOLDER, SENSOR (S)	
22	DY4 - 2834 - 000 000	F	1	SCREW	
23	Y22 - 8139 - 000 000	C	1	SWITCH	
24	DY4 - 2802 - 000 000	C	1	SUPPORT, LS	
25	DY4 - 2803 - 000 000	C	1	HOLDER, SENSOR (T)	

LS Chassis Ass'y

No. 5

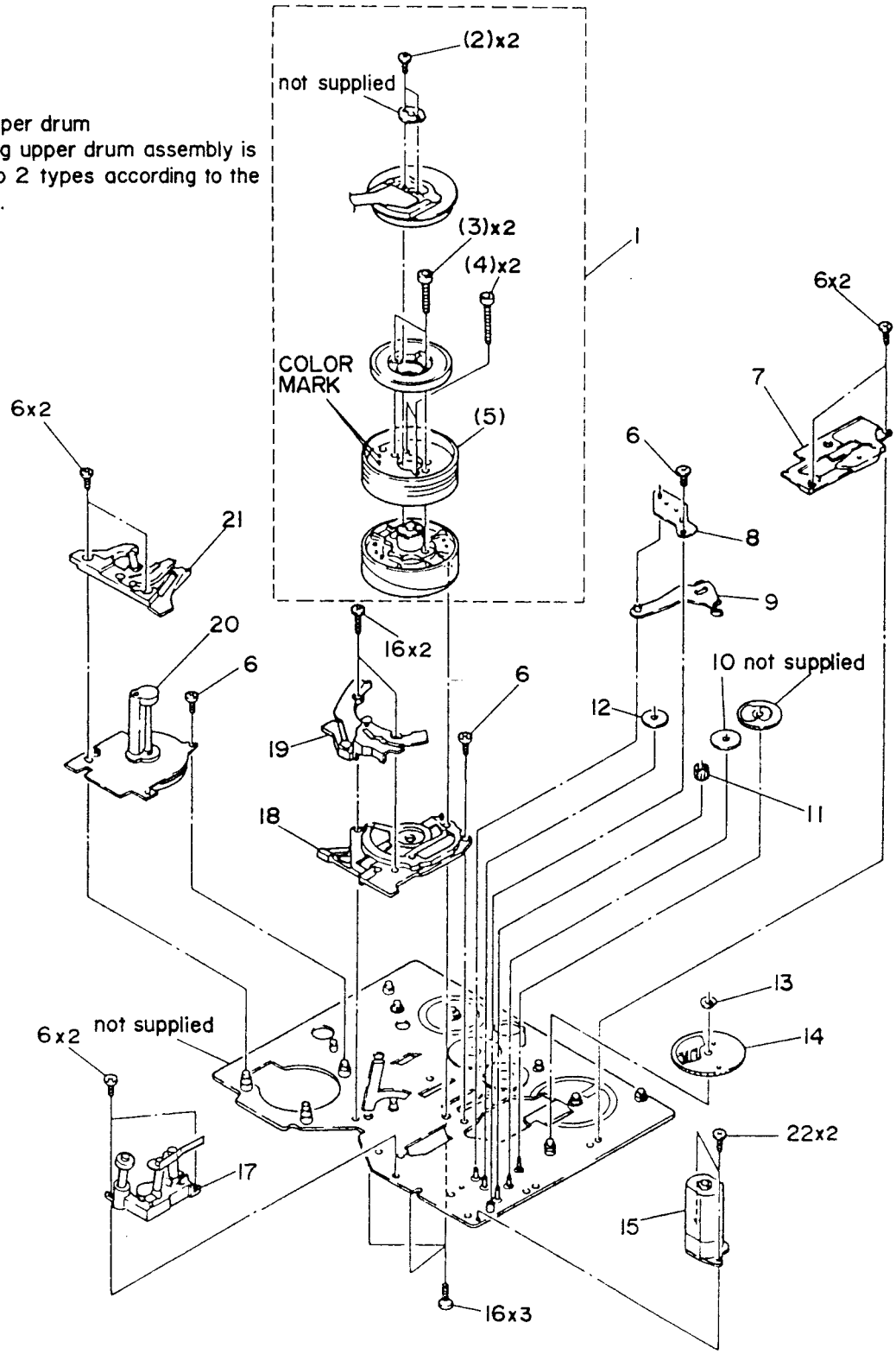


MECHANICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	DY4 - 2778 - 000 000	C	1	GEAR ARM ASS'Y	
2	DY4 - 2786 - 000 000	F	4	WASHER	
3	DY4 - 2884 - 000 000	C	1	REEL, SUPPLY	
4	DY4 - 2822 - 000 000	F	9	SCREW	
5	DY4 - 2771 - 000 000	C	1	CLUTCH	
6	DY4 - 2840 - 000 000	C	1	RATCHET (S)	
7	DY4 - 2821 - 000 000	F	3	WASHER	
8	DY4 - 2826 - 000 000	C	1	SPRING, COIL	
9	DY4 - 2839 - 000 000	C	1	ADJUSTER, TG1	
10	DY4 - 2819 - 000 000	C	1	SPRING, COIL	
11	DY4 - 2763 - 000 000	C	1	ARM ASS'Y (S)	
12	DY4 - 2780 - 000 000	C	1	BASE, RL	
13	DY4 - 2842 - 000 000	C	1	PLATE, CAM	
14	DY4 - 2841 - 000 000	C	1	ARM (S)	
15	DY4 - 2776 - 000 000	C	1	STRING ASS'Y	
16	DY4 - 2827 - 000 000	C	1	HOLDER, JOINT	
17	DY4 - 2879 - 000 000	C	1	ARM ASS'Y TG1	
18	DY4 - 2818 - 000 000	C	1	SPRING, COIL	
19	DY4 - 2756 - 000 000	C	1	GUIDE ARM ASS'Y (S)	
20	DY4 - 2809 - 000 000	C	1	FLANGE, UPPER, TG4	
21	DY4 - 2812 - 000 000	C	1	ROLLER, TG4	
22	DY4 - 2811 - 000 000	C	1	SLEEVE, TG4	
23	DY4 - 2810 - 000 000	C	1	FLANGE, UNDER, TG4	
24	DY4 - 2808 - 000 000	C	1	SPRING, COIL	
25	DY4 - 2816 - 000 000	C	1	SPRING	
26	DY4 - 2779 - 000 000	C	1	RATCHET (T)	
27	DY4 - 2883 - 000 000	C	1	REEL, TAKE UP	
28	DY4 - 2791 - 000 000	F	1	WASHER	
29	DY4 - 2852 - 000 000	F	1	SCREW	
30	DY4 - 2888 - 000 000	C	1	SWITCH, PUSH	
31	DY4 - 2895 - 000 000	C	1	FP - 115 C.B.A.	
32	DY4 - 2873 - 000 000	C	1	ROLLER, TG5	
33	DY4 - 2755 - 000 000	C	1	GUIDE ARM ASS'Y (T)	
34	DY4 - 2886 - 000 000	C	1	ROLLER, TG8	
35	DY4 - 2880 - 000 000	C	1	BASE, TG7	
36	DY4 - 2869 - 000 000	C	1	SCREW	
37	DY4 - 2877 - 000 000	C	1	GUIDE ARM, T	
38	DY4 - 2952 - 000 000	C	1	GUIDE RAIL (S)	
39	DY4 - 2849 - 000 000	C	1	GUIDE RAIL (T)	
40	DY4 - 2945 - 000 000	C	1	LS CHASSIS	
41	DY4 - 2935 - 000 000	F	1	SCREW	
42	DY4 - 2754 - 000 000	C	1	ARM, PINCH	
43	DY4 - 2796 - 000 000	C	1	SPRING, COIL	
44	DY4 - 2797 - 000 000	C	1	SPRING, COIL	
45	DY4 - 2759 - 000 000	C	1	ARM ASS'Y TG - 11	
46	DY4 - 2801 - 000 000	C	1	SPRING, COIL	
47	DY4 - 2800 - 000 000	C	1	SPRING, COIL	
48	DY4 - 2828 - 000 000	F	3	SCREW	
49	DY4 - 2820 - 000 000	C	1	SLIDER, CAM	
50	DY4 - 2863 - 000 000	C	1	POST, GUIDE	
51	DY4 - 2889 - 000 000	C	1	FP - 149 PRINTED CORD P.I.	
52	Y22 - 8156 - 000 000	B	1	LED GL453	
53	DY4 - 2853 - 000 000	C	1	HOLDER, LED	

Mechanism Chassis Ass'y(1)

※Rotating upper drum
The rotating upper drum assembly is divided into 2 types according to the color mark.

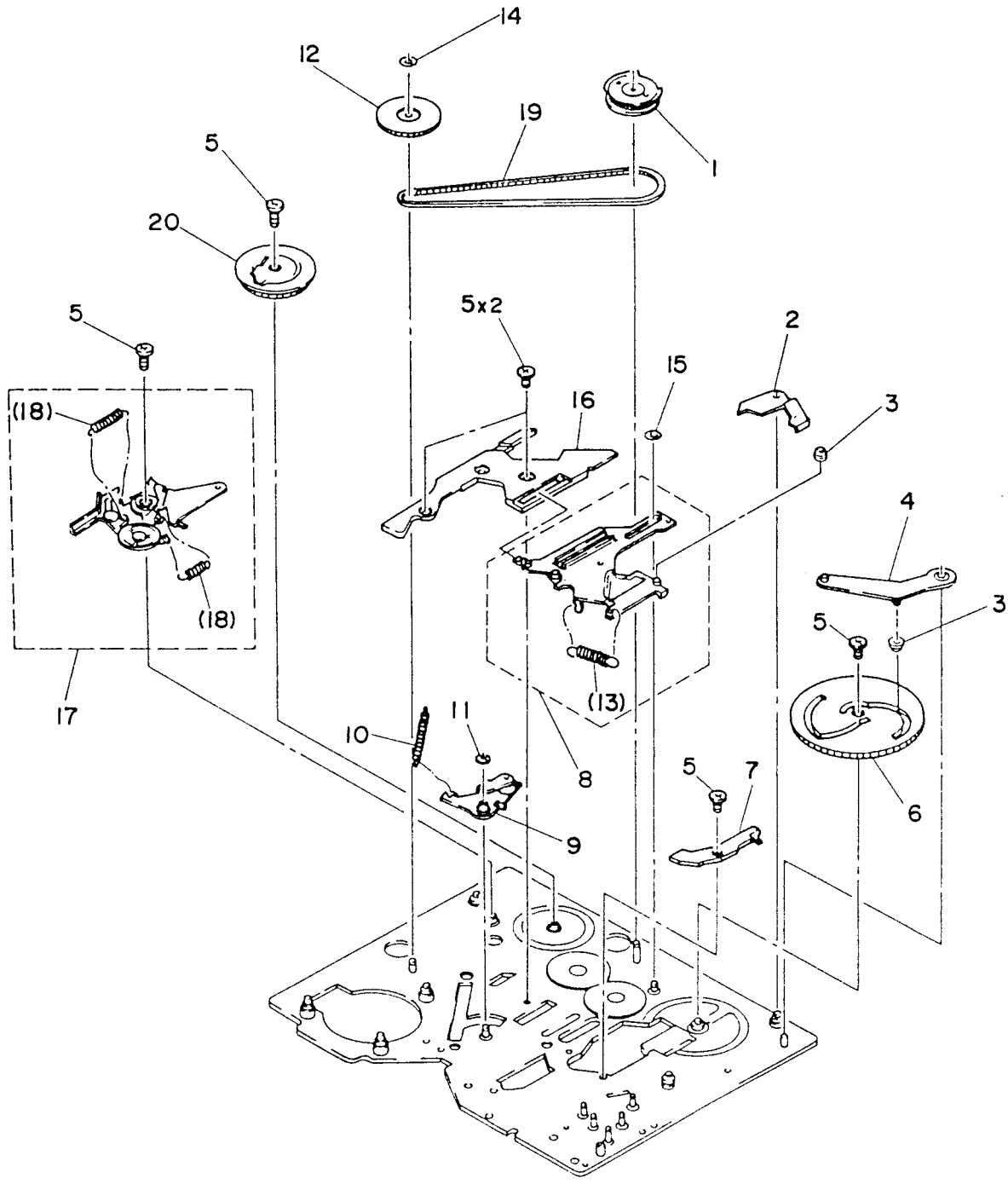


MECHANICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	DY4 - 2901 - 000 000	E	1	DRUM ASS'Y	
2	DY4 - 2823 - 000 000	F	2	SCREW	
3	DY4 - 2794 - 000 000	F	2	BOLT	
4	DY4 - 2795 - 000 000	F	2	BOLT	
5	DY4 - 2902 - 000 000	E	1	UPPER DRUM, A (N)	
	DY4 - 2903 - 000 000	E	1	UPPER DRUM, B (N)	
6	DY4 - 2834 - 000 000	F	9	SCREW	
7	DY4 - 2848 - 000 000	C	1	BASE, CAM	
8	DY4 - 2825 - 000 000	C	1	STOPPER, GEAR	
9	DY4 - 2769 - 000 000	C	1	ARM	
10	DY4 - 2768 - 000 000	C	1	GEAR (2)	
11	DY4 - 2835 - 000 000	C	1	GEAR (0)	
12	DY4 - 2767 - 000 000	C	1	GEAR (1)	
13	DY4 - 2787 - 000 000	F	1	WASHER	
14	DY4 - 2772 - 000 000	C	1	GEAR, MODE	
15	DY4 - 2887 - 000 000	C	1	MOTOR, LOADING	
16	DY4 - 2836 - 000 000	C	5	SCREW	
17	DY4 - 2766 - 000 000	C	1	GUIDE RAIL ASS'Y (1)	
18	DY4 - 2765 - 000 000	C	1	BASE, DRUM	
19	DY4 - 2782 - 000 000	C	1	GUIDE RAIL ASS'Y (2)	
20	DY4 - 2891 - 000 000	C	1	MOTOR, CAPSTAN	
21	DY4 - 2872 - 000 000	C	1	GUIDE RAIL ASS'Y (3)	
22	DY4 - 2907 - 000 000	F	2	SCREW	

Mechanism Chassis Ass'y(2)

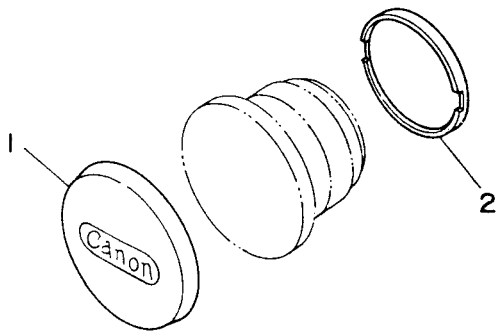
No. 7



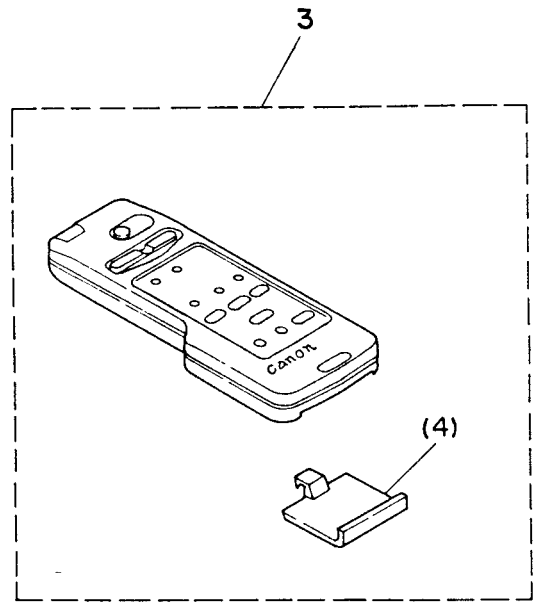
MECHANICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	DY4 - 2871 - 000 000	C	1	PULLEY ASS'Y	
2	DY4 - 2837 - 000 000	C	1	ARM, EJ	
3	DY4 - 2824 - 000 000	C	2	ROLLER, LS	
4	DY4 - 2773 - 000 000	C	1	ARM, LS	
5	DY4 - 2834 - 000 000	F	1	SCREW	
6	DY4 - 2753 - 000 000	C	1	CAM,A	
7	DY4 - 2844 - 000 000	C	1	SUPPORT (S)	
8	DY4 - 2761 - 000 000	C	1	GL SLIDER ASS'Y	
9	DY4 - 2777 - 000 000	C	1	GUIDE ARM ASS'Y	
10	DY4 - 2807 - 000 000	C	1	SPRING, COIL	
11	DY4 - 2788 - 000 000	F	6	WASHER	
12	DY4 - 2870 - 000 000	C	1	GEAR	
13	DY4 - 2798 - 000 000	C	1	SPRING, COIL	
14	DY4 - 2821 - 000 000	F	1	WASHER	
15	DY4 - 2785 - 000 000	F	1	WASHER	
16	DY4 - 2847 - 000 000	C	1	SUPPORT (T)	
17	DY4 - 2760 - 000 000	C	1	PINCH ARM ASS'Y	
18	DY4 - 2815 - 000 000	C	2	SPRING, COIL	
19	DY4 - 2843 - 000 000	E	1	BELT	
20	DY4 - 2838 - 000 000	C	1	CAM, B	

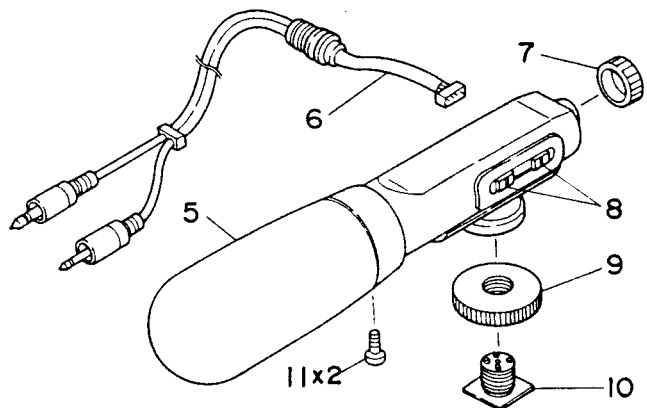
Accessory Parts Section



WD-37, TL-37



WL-400



MM-200

MECHANICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
1	DY3 - 4201 - 000 000	C	1	CAP, LENS	
2	DY3 - 4209 - 000 000	C	1	CAP, DUST (WD - 37 ONLY)	
	DY3 - 4210 - 000 000	C	1	CAP, DUST (TL - 37 ONLY)	
3	DY2 - 1194 - 000 000	B	1	WIRELESS CONTROLLER WL - 400	A10E ONLY
	DY2 - 1202 - 000 000	B	1	WIRELESS CONTROLLER WL - 400	A10F ONLY
4	DY3 - 4197 - 000 000	B	1	COVER, BATTERY	
5	DA8 - 0199 - 000 000	B	1	WIND SCREEN	
6	DH2 - 1072 - 000 000	C	1	CORD ASS'Y	
7	DA8 - 0194 - 000 000	B	1	KNOB	
8	DA8 - 0195 - 000 000	C	2	SLIDE SWITCH	
9	CA4 - 4292 - 000 000	C	1	RING	
10	DA8 - 0188 - 000 000	C	1	SHOE	
11	XB4 - 6201 - 609 000	F	2	SCREW, CROSS - RECESS	

ELECTRICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
CN 101	VS1 - 5256 - 020 000	C	1	CONNECTOR 20P	
CN 301	VS1 - 5211 - 015 000	C	1	CONNECTOR 15P	
CN 550	VS1 - 5127 - 024 000	C	1	CONNECTOR 24P	
CN 551	VS1 - 1169 - 012 000	C	1	CONNECTOR 12P	
CN 552	VS1 - 5127 - 008 000	C	1	CONNECTOR 8P	
CN 553	VS1 - 5127 - 024 000	C	1	CONNECTOR 24P	
CN 554	VS1 - 5127 - 012 000	C	1	CONNECTOR 12P	
CN 602	VS1 - 1169 - 014 000	C	1	CONNECTOR 14P	
CN 603	VS1 - 5051 - 006 000	C	1	CONNECTOR 6P	
CN 605	VS1 - 5211 - 015 000	C	1	CONNECTOR 15P	
CN 606	VS1 - 1169 - 009 000	C	1	CONNECTOR 9P	
CN 607	VS1 - 5256 - 024 000	C	1	CONNECTOR 24P	
CN 802	VS1 - 5127 - 020 000	C	1	CONNECTOR 20P	
CN2301	VS1 - 5127 - 024 000	C	1	CONNECTOR 24P	
CN2401	VS1 - 5127 - 008 000	C	1	CONNECTOR 8P	
CN2501	VS1 - 5127 - 012 000	C	1	CONNECTOR 12P	
CN2505	VS1 - 1169 - 008 000	C	1	CONNECTOR 8P	
CN2901	VS1 - 5127 - 008 000	C	1	CONNECTOR 8P	
D 101	WA1 - 0380 - 000 000	B	1	DIODE MA157	
D 102	WA1 - 5122 - 000 000	B	1	DIODE DAN222	
D 103	WA1 - 5122 - 000 000	B	1	DIODE DAN222	
D 104	WA1 - 0380 - 000 000	B	1	DIODE MA157	
D 106	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 110	WA1 - 1146 - 000 000	B	1	DIODE MA707	
D 501	WA1 - 5010 - 000 000	B	1	DIODE 1SS181	
D 502	WA1 - 9003 - 000 000	B	1	CHIP DIODE SB05	
D 503	WA1 - 9003 - 000 000	B	1	CHIP DIODE SB05	
D 504	WA1 - 9003 - 000 000	B	1	CHIP DIODE SB05	
D 550	WA1 - 1022 - 000 000	B	1	DIODE IMN10	
D 551	WA1 - 0961 - 000 000	B	1	DIODE MA112	
D 552	WA1 - 0961 - 000 000	B	1	DIODE MA112	
D 553	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 554	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 557	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 558	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 559	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 601	WA1 - 0604 - 000 000	B	1	DIODE MA159	
D 604	WA1 - 0604 - 000 000	B	1	DIODE MA159	
D 605	WA1 - 0604 - 000 000	B	1	DIODE MA159	
D 606	WA1 - 0604 - 000 000	B	1	DIODE MA159	
D 607	WA1 - 1164 - 000 000	B	1	DIODE DAN202U	
D 2001	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 2002	WA1 - 5091 - 000 000	B	1	VARIABLE CAPACITANCE DIODE 1SV205	
D 2004	WA1 - 0962 - 000 000	B	1	DIODE MA121	
D 2005	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 2007	WA1 - 0380 - 000 000	B	1	DIODE MA157	
D 2101	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 2102	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 2103	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 2201	WA1 - 1194 - 000 000	B	1	DIODE MA728	
D 2202	WA1 - 5061 - 000 000	B	1	DIODE DAP202U	
D 2302	WA1 - 5061 - 000 000	B	1	DIODE DAP202U	
D 2401	WA1 - 1084 - 000 000	B	1	DIODE MA110	
D 2402	WA1 - 1084 - 000 000	B	1	DIODE MA110	
IC 101	DH4 - 0226 - 000 000	B	1	IC CXA1201Q	
IC 102	DH4 - 0205 - 000 000	B	1	IC LVC556	
IC 106	DH4 - 0180 - 000 000	B	1	IC CXA1200BQ	
IC 107	DH4 - 0139 - 000 000	B	1	IC CXL1502M	
IC 301	DH4 - 0192 - 000 000	B	1	IC CXA1202R	
IC 302	DH4 - 0192 - 000 000	B	1	IC CXA1202R	

ELECTRICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
IC 501	DH4 - 0329 - 000 000	B	1	IC CXP80116 - 560Q	
IC 502	DH4 - 0135 - 000 000	B	1	IC CXA1204Q	
IC 503	DH4 - 0318 - 000 000	B	1	IC CXA1127AM	
IC 504	WA4 - 5127 - 000 000	B	1	IC CXA8006M	
IC 505	WA4 - 5272 - 000 000	B	1	IC MPC1710BM	
IC 506	WA4 - 1248 - 000 000	B	1	IC μPC324G2	
IC 507	WA4 - 5161 - 000 000	B	1	IC CXA1512M	
IC 508	WA4 - 5164 - 000 000	B	1	IC μPC393G2	
IC 509	WA4 - 5125 - 000 000	B	1	IC NJM311M	
IC 510	WA4 - 5126 - 000 000	B	1	IC MB3775PFV	
IC 550	WA4 - 1167 - 000 000	B	1	IC RH5RA50AA	
IC 551	DH4 - 0309 - 000 000	B	1	IC μPD75512GF - 061	
IC 552	WA4 - 1293 - 000 000	B	1	IC PST529CMT	
IC 553	WA3 - 5122 - 000 000	B	1	IC SC7S32F	
IC 554	DH4 - 0284 - 000 000	B	1	IC μPD6145G - 619	
IC 555	WA4 - 1316 - 000 000	B	1	IC PST529DMT	
IC2001	DH4 - 0270 - 000 000	B	1	IC MN5128	
IC2002	DH4 - 0125 - 000 000	B	1	IC MN53015CXY	
IC2003	WA3 - 5362 - 000 000	B	1	IC MN3107CS	
IC2004	WA4 - 0901 - 000 000	B	1	IC AN2011S	
IC2005	WA3 - 3679 - 000 000	B	1	IC MN3820S	
IC2102	DH4 - 0228 - 000 000	B	1	IC AN2154FAP	
IC2201	DH4 - 0229 - 000 000	B	1	IC AN2254FAP	
IC2202	WA3 - 3358 - 000 000	B	1	IC MC74HC4053F	
IC2301	WA3 - 3175 - 000 000	B	1	IC BU4066BF	
IC2302	WA3 - 5392 - 000 000	B	1	IC S2917IF01	
IC2303	DH4 - 0305 - 000 000	B	1	IC M37450M4 - 478FP	
IC2304	WA4 - 1293 - 000 000	B	1	IC PST529CMT	
IC2305	WA4 - 1248 - 000 000	B	1	IC μPC324G2	
IC2306	WA4 - 1248 - 000 000	B	1	IC μPC324G2	
IC2308	WA3 - 5510 - 000 000	B	1	IC MB88346	
IC2401	DH4 - 0281 - 000 000	B	1	IC LD5077	
IC2402	DH4 - 0304 - 000 000	B	1	IC M37450M4 - 483FP	
IC2403	WA4 - 5167 - 000 000	B	1	IC LB1830M	
IC2404	WA4 - 5167 - 000 000	B	1	IC LB1830M	
IC2405	WA3 - 3938 - 000 000	B	1	IC SC14S81F	
IC2406	DH4 - 0280 - 000 000	B	1	IC CM7056	
IC2407	WA3 - 5173 - 000 000	B	1	IC SC7S00F	
Q 104	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 106	WA2 - 5149 - 000 000	B	1	TRANSISTOR 2SB1412F5	
Q 107	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 108	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 109	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 110	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 111	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 112	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 113	WA2 - 5146 - 000 000	B	1	TRANSISTOR UMX1	
Q 114	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 115	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 116	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 118	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 119	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 122	WA2 - 5155 - 000 000	B	1	TRANSISTOR DTA114EE	
Q 123	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 125	WA2 - 5143 - 000 000	B	1	TRANSISTOR UMH6	
Q 126	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 127	WA2 - 5143 - 000 000	B	1	TRANSISTOR UMH6	
Q 128	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 129	WA2 - 5140 - 000 000	B	1	TRANSISTOR DTA144EE	
Q 130	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	

ELECTRICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
Q 131	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 132	WA2 - 5204 - 000 000	B	1	TRANSISTOR DTC114TE	
Q 134	WA2 - 5146 - 000 000	B	1	TRANSISTOR UMX1	
Q 135	WA2 - 5143 - 000 000	B	1	TRANSISTOR UMH6	
Q 136	WA2 - 5204 - 000 000	B	1	TRANSISTOR DTC114TE	
Q 137	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 139	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 151	WA2 - 5152 - 000 000	B	1	TRANSISTOR 2SB1424	
Q 152	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 153	WA2 - 5152 - 000 000	B	1	TRANSISTOR 2SB1424	
Q 154	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 155	WA2 - 5143 - 000 000	B	1	TRANSISTOR UMH2	
Q 156	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 157	WA2 - 5140 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 158	WA2 - 5140 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 301	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 302	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 303	WA2 - 5224 - 000 000	B	1	TRANSISTOR 2SC4213B	
Q 306	WA2 - 5224 - 000 000	B	1	TRANSISTOR 2SC4213B	
Q 307	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 308	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 309	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 310	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 311	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 312	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 313	WA2 - 5224 - 000 000	B	1	TRANSISTOR 2SC4213B	
Q 316	WA2 - 5224 - 000 000	B	1	TRANSISTOR 2SC4213B	
Q 317	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 318	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 319	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 320	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 321	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
Q 322	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 323	WA2 - 1498 - 000 000	B	1	TRANSISTOR 2SA1162	
Q 324	WA2 - 5140 - 000 000	B	1	TRANSISTOR DTA144EE	
Q 501	WA2 - 5206 - 000 000	B	1	TRANSISTOR DTA124EE	
Q 502	WA2 - 1337 - 000 000	B	1	TRANSISTOR 2SC4081	
Q 503	WA2 - 5156 - 000 000	B	1	TRANSISTOR DTC124EE	
Q 504	WA2 - 1437 - 000 000	B	1	TRANSISTOR 2SB1121(S,T)	
Q 505	WA2 - 1337 - 000 000	B	1	TRANSISTOR 2SC4081	
Q 506	WA2 - 1437 - 000 000	B	1	TRANSISTOR 2SB1121(S,T)	
Q 507	WA2 - 1337 - 000 000	B	1	TRANSISTOR 2SC4081	
Q 508	WA2 - 1437 - 000 000	B	1	TRANSISTOR 2SB1121(S,T)	
Q 509	WA2 - 1337 - 000 000	B	1	TRANSISTOR 2SC4081	
Q 550	WA2 - 5140 - 000 000	B	1	TRANSISTOR DTA144EE	
Q 551	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
Q 552	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 553	WA2 - 5188 - 000 000	B	1	TRANSISTOR 2SC4617GB	
Q 554	WA2 - 5155 - 000 000	B	1	TRANSISTOR DTA114EE	
Q 555	WA2 - 5155 - 000 000	B	1	TRANSISTOR DTA114EE	
Q 556	WA2 - 5155 - 000 000	B	1	TRANSISTOR DTA114EE	
Q 557	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 558	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 559	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 560	WA2 - 5140 - 000 000	B	1	TRANSISTOR DTA144EE	
Q 561	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 601	WA2 - 5137 - 000 000	B	1	TRANSISTOR XN4401	
Q 602	WA2 - 5137 - 000 000	B	1	TRANSISTOR XN4401	
Q 603	WA2 - 5205 - 000 000	B	1	TRANSISTOR UMT1	
Q 604	WA2 - 5223 - 000 000	B	1	TRANSISTOR DTC144TE	

ELECTRICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
Q 605	WA2 - 5223 - 000 000	B	1	TRANSISTOR DTC144TE	
Q 606	WA2 - 5223 - 000 000	B	1	TRANSISTOR DTC144TE	
Q 607	WA2 - 5223 - 000 000	B	1	TRANSISTOR DTC144TE	
Q 608	WA2 - 5223 - 000 000	B	1	TRANSISTOR DTC144TE	
Q 609	WA2 - 5223 - 000 000	B	1	TRANSISTOR DTC144TE	
Q 610	WA2 - 5223 - 000 000	B	1	TRANSISTOR DTC144TE	
Q 611	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 612	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 613	WA2 - 5088 - 000 000	B	1	TRANSISTOR DTC114EU	
Q 614	WA2 - 5145 - 000 000	B	1	TRANSISTOR UMS1	
Q 615	WA2 - 5144 - 000 000	B	1	TRANSISTOR UMG4	
Q 616	WA2 - 1436 - 000 000	B	1	TRANSISTOR 2SB962 - Z	
Q 617	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 618	WA2 - 5205 - 000 000	B	1	TRANSISTOR UMT1	
Q 619	WA2 - 5205 - 000 000	B	1	TRANSISTOR UMT1	
Q 620	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 621	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 622	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 623	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 626	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 627	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 628	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 629	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 630	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
Q 2001	Y22 - 2579 - 000 000	B	1	FET 2SK662QR	
Q 2002	WA2 - 1337 - 000 000	B	1	TRANSISTOR 2SC4081	
Q 2003	WA2 - 1337 - 000 000	B	1	TRANSISTOR 2SC4081	
Q 2004	Y22 - 2580 - 000 000	B	1	TRANSISTOR 2SA1610	
Q 2005	Y22 - 2581 - 000 000	B	1	TRANSISTOR 2SC4176	
Q 2006	Y22 - 2580 - 000 000	B	1	TRANSISTOR 2SA1610	
Q 2007	Y22 - 2581 - 000 000	B	1	TRANSISTOR 2SA4176	
Q 2008	Y22 - 2580 - 000 000	B	1	TRANSISTOR 2SA1610	
Q 2009	Y22 - 2581 - 000 000	B	1	TRANSISTOR 2SC4176	
Q 2010	WA2 - 1234 - 000 000	B	1	TRANSISTOR IMX2	
Q 2011	WA2 - 1337 - 000 000	B	1	TRANSISTOR 2SC4081	
Q 2012	WA2 - 1234 - 000 000	B	1	TRANSISTOR IMX2	
Q 2101	WA2 - 5162 - 000 000	B	1	TRANSISTOR UMH5	
Q 2102	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 2104	WA2 - 5161 - 000 000	B	1	TRANSISTOR UMX2	
Q 2105	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
Q 2106	WA2 - 5161 - 000 000	B	1	TRANSISTOR UMX2	
Q 2107	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
Q 2108	WA2 - 5161 - 000 000	B	1	TRANSISTOR UMX2	
Q 2109	WA2 - 5161 - 000 000	B	1	TRANSISTOR UMX2	
Q 2110	WA2 - 5162 - 000 000	B	1	TRANSISTOR UMH5	
Q 2111	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
Q 2112	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
Q 2113	WA2 - 5161 - 000 000	B	1	TRANSISTOR UMX2	
Q 2114	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
Q 2115	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
Q 2116	WA2 - 5160 - 000 000	B	1	TRANSISTOR UMT2	
Q 2201	WA2 - 5164 - 000 000	B	1	TRANSISTOR UMD6	
Q 2202	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 2203	WA2 - 5161 - 000 000	B	1	TRANSISTOR UMX2	
Q 2204	WA2 - 5160 - 000 000	B	1	TRANSISTOR UMT2	
Q 2205	WA2 - 5161 - 000 000	B	1	TRANSISTOR UMX2	
Q 2206	WA2 - 5164 - 000 000	B	1	TRANSISTOR UMD6	
Q 2207	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 2208	WA2 - 5141 - 000 000	B	1	TRANSISTOR 2SA1774	
Q 2210	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	

ELECTRICAL PARTS

	SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
	Q 2211	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
	Q 2212	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
	Q 2213	WA2 - 5147 - 000 000	B	1	TRANSISTOR UMZ1	
	Q 2214	WA2 - 5163 - 000 000	B	1	TRANSISTOR UMB7	
	Q 2215	WA2 - 5160 - 000 000	B	1	TRANSISTOR UMT2	
	Q 2216	WA2 - 5161 - 000 000	B	1	TRANSISTOR UMX2	
	Q 2217	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
	Q 2301	WA2 - 5162 - 000 000	B	1	TRANSISTOR UMH5	
	Q 2302	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
	Q 2304	WA2 - 5162 - 000 000	B	1	TRANSISTOR UMH5	
	Q 2401	WA2 - 5161 - 000 000	B	1	TRANSISTOR UMX2	
	Q 2402	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
	Q 2403	WA2 - 5139 - 000 000	B	1	TRANSISTOR DTC144EE	
	Q 2404	WA2 - 5142 - 000 000	B	1	TRANSISTOR 2SC4617	
	Q 2405	WA2 - 5165 - 000 000	B	1	TRANSISTOR UMD2	
⚠	RR 101	DH4 - 0142 - 000 000	D	1	LINK, IC ICP - F15	
⚠	RR 550	DH4 - 0273 - 000 000	D	1	LINK, IC ICP - K10	
⚠	RR 602	DH4 - 0143 - 000 000	D	1	LINK, IC ICP - F20	
⚠	RR 801	DH4 - 0144 - 000 000	D	1	LINK, IC ICP - F25	
⚠	RR2981	DH4 - 0142 - 000 000	D	1	LINK, IC ICP - F15	
⚠	RR2982	DH4 - 0142 - 000 000	D	1	LINK, IC ICP - F15	
⚠	RR2983	DH4 - 0142 - 000 000	D	1	LINK, IC ICP - F15	
⚠	RR2984	DH4 - 0166 - 000 000	D	1	LINK, IC D2000	
	VC 551	VC6 - 0340 - 300 000	C	1	CAPACITOR, TRIMMER 30PF	
	VC2001	VC6 - 3670 - 100 000	C	1	CAPACITOR, TRIMMER 10PF	
	VC2002	VC6 - 0340 - 100 000	C	1	CAPACITOR, TRIMMER 10PF	
	VC2201	VC6 - 0340 - 300 000	C	1	CAPACITOR, TRIMMER 30PF	
	VC2401	VC6 - 0340 - 300 000	C	1	CAPACITOR, TRIMMER 30PF	
	VC2501	VC6 - 0340 - 400 000	C	1	CAPACITOR, TRIMMER 40PF	
	VC2502	VC6 - 0340 - 300 000	C	1	CAPACITOR, TRIMMER 30PF	
	VR 101	VR5 - 7780 - 103 000	C	1	RESISTOR, VARIABLE 10K Ω	
	VR 102	VR5 - 7780 - 102 000	C	1	RESISTOR, VARIABLE 1K Ω	
	VR 103	VR5 - 7780 - 102 000	C	1	RESISTOR, VARIABLE 1K Ω	
	VR 106	VR5 - 7780 - 222 000	C	1	RESISTOR, VARIABLE 2.2K Ω	
	VR 107	VR5 - 7780 - 103 000	C	1	RESISTOR, VARIABLE 10K Ω	
	VR 108	VR5 - 7780 - 222 000	C	1	RESISTOR, VARIABLE 2.2K Ω	
	VR 109	VR5 - 7780 - 332 000	C	1	RESISTOR, VARIABLE 3.3K Ω	
	VR 111	VR5 - 7780 - 223 000	C	1	RESISTOR, VARIABLE 22K Ω	
	VR 112	VR5 - 7780 - 102 000	C	1	RESISTOR, VARIABLE 1K Ω	
	VR 113	VR5 - 7780 - 223 000	C	1	RESISTOR, VARIABLE 22K Ω	
	VR 114	VR5 - 7780 - 473 000	C	1	RESISTOR, VARIABLE 47K Ω	
	VR 115	VR5 - 7780 - 473 000	C	1	RESISTOR, VARIABLE 47K Ω	
	VR 301	VR5 - 7780 - 472 000	C	1	RESISTOR, VARIABLE 4.7K Ω	
	VR 302	VR5 - 7780 - 472 000	C	1	RESISTOR, VARIABLE 4.7K Ω	
	VR 303	VR5 - 7780 - 472 000	C	1	RESISTOR, VARIABLE 4.7K Ω	
	VR 304	VR5 - 7780 - 472 000	C	1	RESISTOR, VARIABLE 4.7K Ω	
	VR 305	VR5 - 7780 - 473 000	C	1	RESISTOR, VARIABLE 47K Ω	
	VR 306	VR5 - 7780 - 473 000	C	1	RESISTOR, VARIABLE 47K Ω	
	VR 307	VR5 - 7780 - 473 000	C	1	RESISTOR, VARIABLE 47K Ω	
	VR 308	VR5 - 7780 - 473 000	C	1	RESISTOR, VARIABLE 47K Ω	
	VR 501	VR5 - 7780 - 472 000	C	1	RESISTOR, VARIABLE 4.7K Ω	
	VR 502	VR5 - 7780 - 102 000	C	1	RESISTOR, VARIABLE 1K Ω	
	VR 550	VR5 - 7780 - 104 000	C	1	RESISTOR, VARIABLE 100K Ω	
	VR 601	VR5 - 7780 - 474 000	C	1	RESISTOR, VARIABLE 470K Ω	
	VR2001	VR5 - 7780 - 103 000	C	1	RESISTOR, VARIABLE 10K Ω	
	VR2101	VR5 - 7780 - 103 000	C	1	RESISTOR, VARIABLE 10K Ω	
	VR2103	VR5 - 7780 - 103 000	C	1	RESISTOR, VARIABLE 10K Ω	
	VR2104	VR5 - 7780 - 472 000	C	1	RESISTOR, VARIABLE 4.7K Ω	
	VR2201	VR5 - 7780 - 103 000	C	1	RESISTOR, VARIABLE 10K Ω	
	VR2202	VR5 - 7780 - 103 000	C	1	RESISTOR, VARIABLE 10K Ω	

ELECTRICAL PARTS

SYMBOL	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
VR2203	VR5 - 7780 - 472 000	C	1	RESISTOR, VARIABLE 4.7K Ω	
VR2401	VR5 - 7780 - 103 000	C	1	RESISTOR, VARIABLE 10K Ω	
VR2501	VR5 - 7780 - 472 000	C	1	RESISTOR, VARIABLE 4.7K Ω	
VR2503	VR5 - 7780 - 104 000	C	1	RESISTOR, VARIABLE 100K Ω	
VR2901	VR5 - 7780 - 221 000	C	1	RESISTOR, VARIABLE 220 Ω	
VR2902	VR5 - 7780 - 473 000	C	1	RESISTOR, VARIABLE 47K Ω	
VR2920	VR7 - 0380 - 205 000	C	1	RESISTOR, VARIABLE 2M Ω /200V	
VR2921	VR7 - 0710 - 105 000	C	1	RESISTOR, VARIABLE 500K Ω	

PARTS LIST

PAGE	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
16	CA4 - 4292 - 000 000	C	1	RING	
6	DA1 - 1948 - 000 000	F	2	SCREW	
2	DA1 - 2514 - 000 000	B	5	SEAL	
2	DA1 - 4002 - 000 000	B	1	CUP, EYE	
2	DA1 - 4160 - 000 000	F	4	SCREW	
2	DA1 - 4188 - 000 000	B	1	KNOB, BATTERY EJECT	
2	DA1 - 4189 - 000 000	C	1	LEVER, BATTERY	
2	DA1 - 4190 - 000 000	B	1	HOOK, BATTERY	
2	DA1 - 4194 - 000 000	C	2	TERMINAL, BATTERY	
2	DA1 - 4195 - 000 000	C	1	TERMINAL (1)	
2	DA1 - 4196 - 000 000	C	1	TERMINAL (2)	
2	DA1 - 4197 - 000 000	B	1	STRAP, HAND	
2	DA1 - 4198 - 000 000	B	1	CAP, AV	
6	DA1 - 4199 - 000 000	C	1	COVER, DRUM	
4	DA1 - 4211 - 000 000	C	1	HOLDER, CAMERA	
2	DA1 - 4230 - 000 000	B	1	COVER, BATTERY	
2	DA1 - 4240 - 000 000	B	1	RING, RUBBER	
2	DA1 - 4243 - 000 000	B	1	SEAL	
2	DA1 - 4246 - 000 000	B	1	RIGHT COVER, E.V.F.	A10E ONLY
2	DA1 - 4247 - 000 000	B	1	RIGHT COVER, E.V.F.	A10F ONLY
2	DA1 - 4248 - 000 000	F	2	SCREW, CROSS - RECESS	
2	DA1 - 4249 - 000 000	F	2	SCREW, CROSS - RECESS, PH	
2	DA1 - 4250 - 000 000	F	1	SCREW, CROSS - RECESS	
6	DA1 - 4251 - 000 000	C	1	HOLDER, RECORDER (A)	
6	DA1 - 4252 - 000 000	C	1	HOLDER, RECORDER (B)	
4	DA7 - 2075 - 000 000	C	1	ROLLER, ECCENTRIC	
16	DA8 - 0188 - 000 000	C	1	SHOE	
16	DA8 - 0194 - 000 000	B	1	KNOB	
16	DA8 - 0195 - 000 000	C	2	SLIDE SWITCH	
16	DA8 - 0199 - 000 000	B	1	WIND SCREEN	
6	DF1 - 0901 - 000 000	C	1	FLEXIBLE CORD ASS'Y	
4	DF1 - 0902 - 000 000	C	1	LED ASS'Y	
2	DG1 - 1195 - 000 000	B	1	ZOOM SWITCH ASS'Y	
2	DG1 - 1307 - 000 000	B	1	CAP, LENS	
4	DG1 - 1360 - 000 000	C	1	LENS UNIT	
6	DG1 - 1436 - 000 000	C	1	RECORDER KEY C.B.A.	
4	DG1 - 1444 - 000 000	C	1	AV JACK C.B.A.	
4	DG1 - 1445 - 000 000	C	1	MIC JACK C.B.A.	
2	DG1 - 1448 - 000 000	C	1	FRONT KEY C.B.A.	
2	DG1 - 1452 - 000 000	C	1	E.V.F.2 C.B.A.	
2	DG1 - 1460 - 000 000	B	1	UPPER COVER ASS'Y	A10F ONLY
2	DG1 - 1469 - 000 000	B	1	UPPER COVER ASS'Y	A10E ONLY
2	DG1 - 1471 - 000 000	B	1	COVER, CASSETTE	A10E ONLY
6	DG1 - 1473 - 000 000	C	1	RECORDER MAIN C.B.A.	
4	DG1 - 1474 - 000 000	C	1	CAMERA KEY C.B.A.	A10E ONLY
4	DG1 - 1475 - 000 000	C	1	SENSOR C.B.A.	
4	DG1 - 1476 - 000 000	C	1	CAMERA MAIN C.B.A.	
4	DG1 - 1477 - 000 000	C	1	DIGITAL MEMORY C.B.A.	
2	DG1 - 1478 - 000 000	C	1	BATTERY FUSE C.B.A.	
2	DG1 - 1479 - 000 000	C	1	E.V.F.1 C.B.A.	
2	DG1 - 1480 - 000 000	C	1	CRT ASS'Y	
4	DG1 - 1485 - 000 000	C	1	CAMERA KEY C.B.A.	A10F ONLY
2	DG1 - 1488 - 000 000	B	1	UPPER COVER ASS'Y	A10F ONLY
2	DG1 - 1489 - 000 000	B	1	COVER, CASSETTE	A10F ONLY
4	DG1 - 1651 - 000 000	C	1	AUDIO - FM C.B.A.	
16	DH2 - 1072 - 000 000	C	1	CORD ASS'Y	
6	DH2 - 1360 - 000 000	C	1	PRINTED CORD	
4,6	DH2 - 1361 - 000 000	C	2	PRINTED CORD	
2	DH2 - 1363 - 000 000	C	1	PRINTED CORD	
2	DH2 - 1364 - 000 000	C	1	PRINTED CORD	

PARTS LIST

	PAGE	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
	4	DH3 - 0019 - 000 000	C	1	DC/DC CONVERTER	
		DH4 - 0125 - 000 000	B	1	IC MN53015CXY	
		DH4 - 0135 - 000 000	B	1	IC CXA1204Q	
		DH4 - 0139 - 000 000	B	1	IC CXL1502M	
⚠		DH4 - 0142 - 000 000	D	4	LINK, IC ICP - F15	
⚠		DH4 - 0143 - 000 000	D	1	LINK, IC ICP - F20	
⚠		DH4 - 0144 - 000 000	D	1	LINK, IC ICP - F25	
⚠		DH4 - 0166 - 000 000	D	1	LINK, IC D2000	
		DH4 - 0180 - 000 000	B	1	IC CXA1200BQ	
		DH4 - 0192 - 000 000	B	2	IC CXA1202R	
		DH4 - 0205 - 000 000	B	1	IC LVC556	
		DH4 - 0226 - 000 000	B	1	IC CXA1201Q	
		DH4 - 0228 - 000 000	B	1	IC AN2154FAP	
		DH4 - 0229 - 000 000	B	1	IC AN2254FAP	
		DH4 - 0270 - 000 000	B	1	IC MN5128	
⚠		DH4 - 0273 - 000 000	D	1	LINK, IC ICP - K10	
	4	DH4 - 0277 - 000 000	B	1	CCD MN3749 FC	
		DH4 - 0280 - 000 000	B	1	IC CM7056	
		DH4 - 0281 - 000 000	B	1	IC LD5077	
		DH4 - 0284 - 000 000	B	1	IC μPD6145G - 619	
		DH4 - 0304 - 000 000	B	1	IC M37450M4 - 483FP	
		DH4 - 0305 - 000 000	B	1	IC M37450M4 - 478FP	
		DH4 - 0309 - 000 000	B	1	IC μPD75512GF - 055	
		DH4 - 0318 - 000 000	B	1	IC CXA1127AM	
	6	DH4 - 0328 - 000 000	C	1	JOG C.B.A.	
		DH4 - 0329 - 000 000	B	1	IC CXP80116 - 560Q	
	2	DH9 - 0517 - 000 000	B	1	MICROPHONE	
	4	DY1 - 7143 - 000 000	C	1	FOCUS LENS ASS'Y	
	16	DY2 - 1194 - 000 000	B	1	WIRELESS CONTROLLER WL - 400	A10E ONLY
	16	DY2 - 1202 - 000 000	B	1	WIRELESS CONTROLLER WL - 400	A10F ONLY
	2	DY2 - 1322 - 000 000	B	1	LEFT COVER, E.V.F.	
	2	DY2 - 1328 - 000 000	B	1	FINDER ASS'Y	
	2	DY2 - 1330 - 000 000	B	1	CASSETTE COVER, LS	
	2	DY2 - 1337 - 000 000	B	1	RIGHT COVER ASS'Y	A10E ONLY
	2	DY2 - 1338 - 000 000	B	1	RIGHT COVER ASS'Y	A10F ONLY
	2	DY2 - 1339 - 000 000	B	1	LEFT COVER ASS'Y	A10E ONLY
	2	DY2 - 1340 - 000 000	B	1	LEFT COVER ASS'Y	A10F ONLY
	16	DY3 - 4197 - 000 000	B	1	COVER, BATTERY	
	16	DY3 - 4201 - 000 000	C	1	CAP, LENS	
	16	DY3 - 4209 - 000 000	C	1	CAP, DUST (WD - 37 ONLY)	
	16	DY3 - 4210 - 000 000	C	1	CAP, DUST (TL - 37 ONLY)	
	8	DY4 - 2445 - 000 000	F	2	E RING	
	14	DY4 - 2753 - 000 000	C	1	CAM,A	
	10	DY4 - 2754 - 000 000	C	1	ARM, PINCH	
	10	DY4 - 2755 - 000 000	C	1	GUIDE ARM ASS'Y (T)	
	10	DY4 - 2756 - 000 000	C	1	GUIDE ARM ASS'Y (S)	
	10	DY4 - 2759 - 000 000	C	1	ARM ASS'Y TG - 11	
	14	DY4 - 2760 - 000 000	C	1	PINCH ARM ASS'Y	
	14	DY4 - 2761 - 000 000	C	1	GL SLIDER ASS'Y	
	8	DY4 - 2762 - 000 000	C	1	CASSETTE COMPARTMENT ASS'Y	
	10	DY4 - 2763 - 000 000	C	1	ARM ASS'Y (S)	
	8	DY4 - 2764 - 000 000	C	1	ARM ASS'Y TP	
	12	DY4 - 2765 - 000 000	C	1	BASE, DRUM	
	12	DY4 - 2766 - 000 000	C	1	GUIDE RAIL ASS'Y (1)	
	12	DY4 - 2767 - 000 000	C	1	GEAR (1)	
	12	DY4 - 2768 - 000 000	C	1	GEAR (2)	
	12	DY4 - 2769 - 000 000	C	1	ARM	
	10	DY4 - 2771 - 000 000	C	1	CLUTCH	
	12	DY4 - 2772 - 000 000	C	1	GEAR, MODE	
	14	DY4 - 2773 - 000 000	C	1	ARM, LS	

PARTS LIST

PAGE	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
8	DY4 - 2775 - 000 000	C	1	PROTECTOR ASS'Y	
10	DY4 - 2776 - 000 000	C	1	STRING ASS'Y	
14	DY4 - 2777 - 000 000	C	1	GUIDE ARM ASS'Y	
10	DY4 - 2778 - 000 000	C	1	GEAR ARM ASS'Y	
10	DY4 - 2779 - 000 000	C	1	RATCHET (T)	
10	DY4 - 2780 - 000 000	C	1	BASE, RL	
12	DY4 - 2782 - 000 000	C	1	GUIDE RAIL ASS'Y (2)	
14	DY4 - 2785 - 000 000	F	1	WASHER	
10	DY4 - 2786 - 000 000	F	4	WASHER	
12	DY4 - 2787 - 000 000	F	1	WASHER	
8,14	DY4 - 2788 - 000 000	F	9	WASHER	
8	DY4 - 2790 - 000 000	C	1	SPRING, COIL	
10	DY4 - 2791 - 000 000	F	1	WASHER	
12	DY4 - 2794 - 000 000	F	2	BOLT	
12	DY4 - 2795 - 000 000	F	2	BOLT	
10	DY4 - 2796 - 000 000	C	1	SPRING, COIL	
10	DY4 - 2797 - 000 000	C	1	SPRING, COIL	
14	DY4 - 2798 - 000 000	C	1	SPRING, COIL	
8	DY4 - 2799 - 000 000	C	1	SPRING, COIL	
10	DY4 - 2800 - 000 000	C	1	SPRING, COIL	
10	DY4 - 2801 - 000 000	C	1	SPRING, COIL	
8	DY4 - 2802 - 000 000	C	1	SUPPORT, LS	
8	DY4 - 2803 - 000 000	C	1	HOLDER, SENSOR (T)	
8	DY4 - 2804 - 000 000	C	1	HOLDER, SENSOR (S)	
8	DY4 - 2805 - 000 000	C	1	HOLDER, BS	
8	DY4 - 2806 - 000 000	C	1	PLATE, ADJUST (C)	
14	DY4 - 2807 - 000 000	C	1	SPRING, COIL	
10	DY4 - 2808 - 000 000	C	1	SPRING, COIL	
10	DY4 - 2809 - 000 000	C	1	FLANGE, UPPER, TG4	
10	DY4 - 2810 - 000 000	C	1	FLANGE, UNDER, TG4	
10	DY4 - 2811 - 000 000	C	1	SLEEVE, TG4	
10	DY4 - 2812 - 000 000	C	1	ROLLER, TG4	
14	DY4 - 2815 - 000 000	C	2	SPRING, COIL	
10	DY4 - 2816 - 000 000	C	1	SPRING	
10	DY4 - 2818 - 000 000	C	1	SPRING, COIL	
10	DY4 - 2819 - 000 000	C	1	SPRING, COIL	
10	DY4 - 2820 - 000 000	C	1	SLIDER, CAM	
10,14	DY4 - 2821 - 000 000	F	4	WASHER	
10	DY4 - 2822 - 000 000	F	9	SCREW	
12	DY4 - 2823 - 000 000	F	2	SCREW	
14	DY4 - 2824 - 000 000	C	2	ROLLER, LS	
12	DY4 - 2825 - 000 000	C	1	STOPPER, GEAR	
10	DY4 - 2826 - 000 000	C	1	SPRING, COIL	
10	DY4 - 2827 - 000 000	C	1	HOLDER, JOINT	
8,10	DY4 - 2828 - 000 000	F	11	SCREW	
8	DY4 - 2832 - 000 000	C	1	PLATE (T)	
8	DY4 - 2833 - 000 000	C	1	PLATE (S)	
8,12,14	DY4 - 2834 - 000 000	F	10	SCREW	
12	DY4 - 2835 - 000 000	C	1	GEAR (0)	
12	DY4 - 2836 - 000 000	C	5	SCREW	
14	DY4 - 2837 - 000 000	C	1	ARM, EJ	
14	DY4 - 2838 - 000 000	C	1	CAM, B	
10	DY4 - 2839 - 000 000	C	1	ADJUSTER, TG1	
10	DY4 - 2840 - 000 000	C	1	RATCHET (S)	
10	DY4 - 2841 - 000 000	C	1	ARM (S)	
10	DY4 - 2842 - 000 000	C	1	PLATE, CAM	
14	DY4 - 2843 - 000 000	E	1	BELT	
14	DY4 - 2844 - 000 000	C	1	SUPPORT (S)	
8	DY4 - 2846 - 000 000	C	1	BASE, LED	
14	DY4 - 2847 - 000 000	C	1	SUPPORT (T)	

PARTS LIST

PAGE	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
12	DY4 - 2848 - 000 000	C	1	BASE, CAM	
10	DY4 - 2849 - 000 000	C	1	GUIDE RAIL (T)	
8	DY4 - 2850 - 000 000	C	1	BAR, JOINT	
8	DY4 - 2851 - 000 000	F	1	WASHER	
10	DY4 - 2852 - 000 000	F	1	SCREW	
10	DY4 - 2853 - 000 000	C	1	HOLDER, LED	
8	DY4 - 2862 - 000 000	C	1	FRAME	
10	DY4 - 2863 - 000 000	C	1	POST, GUIDE	
8	DY4 - 2865 - 000 000	C	1	STEEL BALL	
10	DY4 - 2869 - 000 000	C	1	SCREW	
14	DY4 - 2870 - 000 000	C	1	GEAR	
14	DY4 - 2871 - 000 000	C	1	PULLEY ASS'Y	
12	DY4 - 2872 - 000 000	C	1	GUIDE RAIL ASS'Y (3)	
10	DY4 - 2873 - 000 000	C	1	ROLLER, TG5	
8	DY4 - 2875 - 000 000	C	1	ARM ASS'Y, T	
8	DY4 - 2876 - 000 000	C	1	ARM ASS'Y, F	
10	DY4 - 2877 - 000 000	C	1	GUIDE ARM, T	
10	DY4 - 2879 - 000 000	C	1	ARM ASS'Y TG1	
10	DY4 - 2880 - 000 000	C	1	BASE, TG7	
10	DY4 - 2883 - 000 000	C	1	REEL, TAKE UP	
10	DY4 - 2884 - 000 000	C	1	REEL, SUPPLY	
10	DY4 - 2886 - 000 000	C	1	ROLLER, TG8	
12	DY4 - 2887 - 000 000	C	1	MOTOR, LOADING	
10	DY4 - 2888 - 000 000	C	1	SWITCH, PUSH	
10	DY4 - 2889 - 000 000	C	1	FP - 149 PRINTED CORD P.I.	
12	DY4 - 2891 - 000 000	C	1	MOTOR, CAPSTAN	
10	DY4 - 2895 - 000 000	C	1	FP = 115 C.B.A.	
12	DY4 - 2901 - 000 000	E	1	DRUM ASS'Y	
12	DY4 - 2902 - 000 000	E	1	UPPER DRUM, A (N)	
12	DY4 - 2903 - 000 000	E	1	UPPER DRUM, B (N)	
12	DY4 - 2907 - 000 000	F	2	SCREW	
10	DY4 - 2935 - 000 000	F	1	SCREW	
10	DY4 - 2945 - 000 000	C	1	LS CHASSIS	
10	DY4 - 2952 - 000 000	C	1	GUIDE RAIL (S)	
	VC6 - 0340 - 100 000	C	1	CAPACITOR, TRIMMER 10PF	
	VC6 - 0340 - 300 000	C	4	CAPACITOR, TRIMMER 30PF	
	VC6 - 0340 - 400 000	C	4	CAPACITOR, TRIMMER 40PF	
	VC6 - 3670 - 100 000	C	1	CAPACITOR, TRIMMER 10PF	
	VR5 - 7780 - 102 000	C	4	RESISTOR, VARIABLE 1K Ω	
	VR5 - 7780 - 103 000	C	8	RESISTOR, VARIABLE 10K Ω	
	VR5 - 7780 - 104 000	C	2	RESISTOR, VARIABLE 100K Ω	
	VR5 - 7780 - 221 000	C	1	RESISTOR, VARIABLE 220 Ω	
	VR5 - 7780 - 222 000	C	2	RESISTOR, VARIABLE 2.2K Ω	
	VR5 - 7780 - 223 000	C	2	RESISTOR, VARIABLE 22K Ω	
	VR5 - 7780 - 332 000	C	1	RESISTOR, VARIABLE 3.3K Ω	
	VR5 - 7780 - 472 000	C	8	RESISTOR, VARIABLE 4.7K Ω	
	VR5 - 7780 - 473 000	C	7	RESISTOR, VARIABLE 47K Ω	
	VR5 - 7780 - 474 000	C	1	RESISTOR, VARIABLE 470K Ω	
	VR7 - 0380 - 205 000	C	1	RESISTOR, VARIABLE 2M Ω /200V	
	VR7 - 0710 - 105 000	C	1	RESISTOR, VARIABLE 500K Ω	
	VS1 - 1169 - 008 000	C	1	CONNECTOR 8P	
	VS1 - 1169 - 009 000	C	1	CONNECTOR 9P	
	VS1 - 1169 - 012 000	C	1	CONNECTOR 12P	
	VS1 - 1169 - 014 000	C	1	CONNECTOR 14P	
	VS1 - 5051 - 006 000	C	1	CONNECTOR 6P	
	VS1 - 5127 - 008 000	C	3	CONNECTOR 8P	
	VS1 - 5127 - 012 000	C	2	CONNECTOR 12P	
	VS1 - 5127 - 020 000	C	1	CONNECTOR 20P	
	VS1 - 5127 - 024 000	C	3	CONNECTOR 24P	
	VS1 - 5211 - 015 000	C	2	CONNECTOR 15P	

PARTS LIST

PAGE	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
	VS1 - 5256 - 020 000	C	1	CONNECTOR 20P	
	VS1 - 5256 - 024 000	C	1	CONNECTOR 24P	
	WA1 - 0380 - 000 000	B	3	DIODE MA157	
	WA1 - 0604 - 000 000	B	4	DIODE MA159	
	WA1 - 0961 - 000 000	B	2	DIODE MA112	
	WA1 - 0962 - 000 000	B	1	DIODE MA121	
	WA1 - 1022 - 000 000	B	1	DIODE IMN10	
	WA1 - 1084 - 000 000	B	13	DIODE MA110	
	WA1 - 1146 - 000 000	B	1	DIODE MA707	
	WA1 - 1164 - 000 000	B	1	DIODE DAN202U	
	WA1 - 1194 - 000 000	B	1	DIODE MA728	
	WA1 - 5010 - 000 000	B	1	DIODE 1SS181	
	WA1 - 5061 - 000 000	B	2	DIODE DAP202U	
	WA1 - 5091 - 000 000	B	1	VARIABLE CAPACITANCE DIODE 1SV205	
	WA1 - 5122 - 000 000	B	2	DIODE DAN222	
	WA1 - 9003 - 000 000	B	3	CHIP DIODE SB05	
	WA2 - 1234 - 000 000	B	2	TRANSISTOR IMX2	
	WA2 - 1337 - 000 000	B	7	TRANSISTOR 2SC4081	
	WA2 - 1436 - 000 000	B	1	TRANSISTOR 2SB962 - Z	
	WA2 - 1437 - 000 000	B	3	TRANSISTOR 2SB1121(S,T)	
	WA2 - 1498 - 000 000	B	1	TRANSISTOR 2SA1162	
	WA2 - 5088 - 000 000	B	1	TRANSISTOR DTC114EU	
	WA2 - 5137 - 000 000	B	2	TRANSISTOR XN4401	
	WA2 - 5139 - 000 000	B	18	TRANSISTOR DTC144EE	
	WA2 - 5140 - 000 000	B	6	TRANSISTOR DTA144EE	
	WA2 - 5141 - 000 000	B	20	TRANSISTOR 2SA1774	
	WA2 - 5142 - 000 000	B	25	TRANSISTOR 2SC4617	
	WA2 - 5143 - 000 000	B	4	TRANSISTOR UMH6	
	WA2 - 5144 - 000 000	B	1	TRANSISTOR UMG4	
	WA2 - 5145 - 000 000	B	1	TRANSISTOR UMS1	
	WA2 - 5146 - 000 000	B	2	TRANSISTOR UMX1	
	WA2 - 5147 - 000 000	B	10	TRANSISTOR UMZ1	
	WA2 - 5149 - 000 000	B	1	TRANSISTOR 2SB1412F5	
	WA2 - 5152 - 000 000	B	2	TRANSISTOR 2SB1424	
	WA2 - 5155 - 000 000	B	4	TRANSISTOR DTA114EE	
	WA2 - 5156 - 000 000	B	1	TRANSISTOR DTC124EE	
	WA2 - 5160 - 000 000	B	3	TRANSISTOR UMT2	
	WA2 - 5161 - 000 000	B	9	TRANSISTOR UMX2	
	WA2 - 5162 - 000 000	B	4	TRANSISTOR UMH5	
	WA2 - 5163 - 000 000	B	1	TRANSISTOR UMB7	
	WA2 - 5164 - 000 000	B	2	TRANSISTOR UMD6	
	WA2 - 5165 - 000 000	B	1	TRANSISTOR UMD2	
	WA2 - 5188 - 000 000	B	1	TRANSISTOR 2SC4617GB	
	WA2 - 5204 - 000 000	B	2	TRANSISTOR DTC114TE	
	WA2 - 5205 - 000 000	B	3	TRANSISTOR UMT1	
	WA2 - 5206 - 000 000	B	1	TRANSISTOR DTA124EE	
	WA2 - 5223 - 000 000	B	7	TRANSISTOR DTC144TE	
	WA2 - 5224 - 000 000	B	4	TRANSISTOR 2SC4213B	
	WA3 - 3175 - 000 000	B	1	IC BU4066BF	
	WA3 - 3358 - 000 000	B	1	IC MC74HC4053F	
	WA3 - 3679 - 000 000	B	1	IC MN3820S	
	WA3 - 3938 - 000 000	B	1	IC SC14S81F	
	WA3 - 5122 - 000 000	B	1	IC SC7S32F	
	WA3 - 5173 - 000 000	B	1	IC SC7S00F	
	WA3 - 5362 - 000 000	B	1	IC MN3107CS	
	WA3 - 5392 - 000 000	B	1	IC S2917IF01	
	WA3 - 5510 - 000 000	B	1	IC MB88346	
	WA4 - 0901 - 000 000	B	1	IC AN2011S	
	WA4 - 1167 - 000 000	B	1	IC RH5RA50AA	
	WA4 - 1248 - 000 000	B	3	IC μPC324G2	

PARTS LIST

PAGE	PART NO.	CLASS	QTY	DESCRIPTION	REMARKS
	WA4 - 1293 - 000 000	B	2	IC PST529CMT	
	WA4 - 1316 - 000 000	B	1	IC PST529DMT	
	WA4 - 5125 - 000 000	B	1	IC NJM311M	
	WA4 - 5126 - 000 000	B	1	IC MB3775PFV	
	WA4 - 5127 - 000 000	B	1	IC CXA8006M	
	WA4 - 5161 - 000 000	B	1	IC CXA1512M	
	WA4 - 5164 - 000 000	B	1	IC μPC393G2	
	WA4 - 5167 - 000 000	B	2	IC LB1830M	
	WA4 - 5272 - 000 000	B	1	IC MPC1710BM	
6	XA1 - 7140 - 207 000	F	3	SCREW, CROSS - RECESS, PH	
6	XA1 - 7140 - 307 000	F	2	SCREW, CROSS - RECESS, PH	
4,6	XA1 - 7200 - 307 000	F	4	SCREW, CROSS - RECESS, PH	
4	XA4 - 8200 - 509 000	F	2	SCREW, CROSS - RECESS, FCH	
4	XA4 - 9170 - 807 000	F	3	SCREW	
2,4	XA4 - 9200 - 409 000	F	10	SCREW, CROSS - RECESS, PH	
2,4	XA4 - 9200 - 509 000	F	10	SCREW, CROSS - RECESS, PH	
2,4	XA4 - 9200 - 609 000	F	6	SCREW, CROSS - RECESS, PH	
2	XA9 - 0435 - 000 000	F	2	SCREW, CROSS - RECESS, PH	
2	XA9 - 0448 - 000 000	F	5	SCREW, CROSS - RECESS, PH	
2	XA9 - 0449 - 000 000	F	2	SCREW, CROSS - RECESS, PH	
2	XA9 - 0491 - 000 000	F	2	SCREW, CROSS - RECESS, PH	
4	XA9 - 0536 - 000 000	F	2	SCREW, CROSS - RECESS	
16	XB4 - 6201 - 609 000	F	2	SCREW, CROSS - RECESS	
4	XB7 - 2200 - 209 000	F	1	NUT	
4	X91 - 1738 - 350 000	F	1	SCREW	
4	X91 - 2035 - 770 000	F	1	SCREW	
4	YA1 - 0012 - 000 000	C	1	BASE, ECCENTRIC	
4	YA1 - 0026 - 000 000	F	1	SCREW	
4	YA1 - 0028 - 000 000	F	1	SCREW	
4	YA1 - 0099 - 000 000	F	3	SCREW	
4	YA1 - 0223 - 000 000	C	1	HOLDER, PCB	
4	YA1 - 0224 - 000 000	C	1	SHEET, DISTANCE	
4	YG9 - 5006 - 000 000	C	1	RELAY LENS ASS'Y	
4	YG9 - 5063 - 000 000	C	1	ENCODER C.B.A.	
4	YG9 - 5072 - 000 000	C	1	IG METER ASS'Y	
4	YH7 - 0025 - 000 000	C	1	MOTOR ASS'Y	
	Y22 - 2579 - 000 000	B	1	FET 2SK662QR	
	Y22 - 2580 - 000 000	B	3	TRANSISTOR 2SA1610	
	Y22 - 2581 - 000 000	B	3	TRANSISTOR 2SC4176	
8	Y22 - 8139 - 000 000	C	1	SWITCH	
10	Y22 - 8156 - 000 000	B	1	LED GL453	
8	Y22 - 8182 - 000 000	B	2	PHOTO TRANSISTOR PT4850F	

CONTENTS

CHAPTER IV. DIAGRAMS

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Guide to diagrams

(1) Single lines in block diagrams

Camera section
Red (———) :Y
(- - - -) :C

Auto focus section
Red (———) :ES, CU

Video section
Red (———) :Recording
(- - - -) :Playback

Syscon-servo section
Red (———) :Drum servo signal
(- - - -) :Capstan servo signal

(2) Voltage on circuit diagram
Red :Recording
Block :Playback

(3) Signal lines on cirsuit deagrams

Camera section
Red :Power supply line
Blue :Luminace signal
Orange :Chrominance signal
Gray (▒▒▒▒) :Luminance+ Chrominance signals
Orange (- - - -) :ES, CU signals

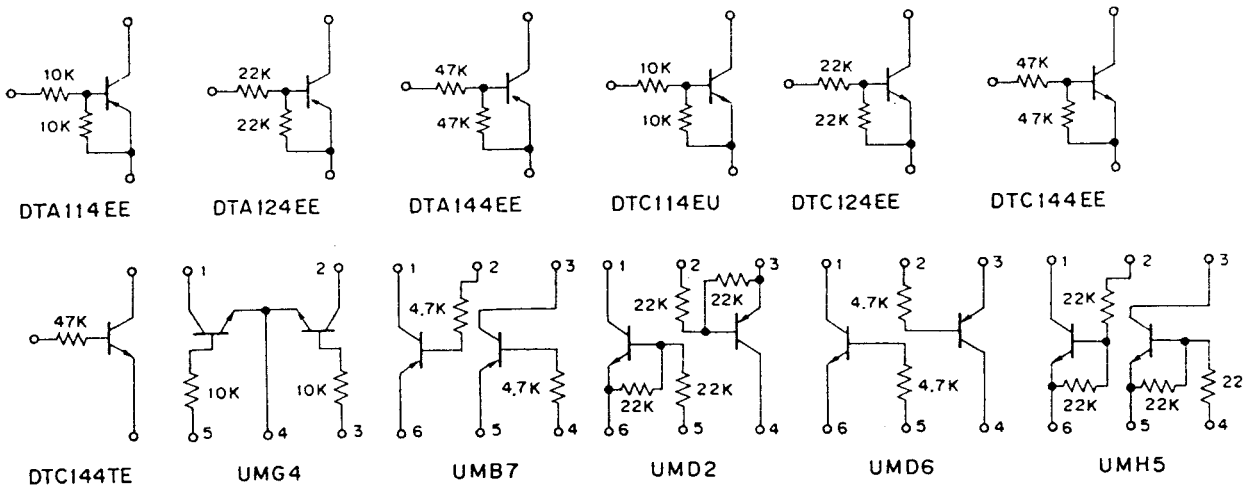
Recorder section
Red :Power supply line
Blue (———) :Capstan PWM signal
(- - - -) :Capstan ATF signal
(—·—) :Capstan FG signal
Orange (———) :Drum PWM signal
(- - - -) :Drum FG signal
(—·—) :Drum PG signal

Recorder section
Gray (———) :Recording luminance+ Chrominance signals
(- - - -) :Playback luminance Chrominance signals
Blue (———) :Recording liminance signal
(- - - -) :Playback luminance signal
Orange (———) :Recording chrominance signal
(- - - -) :Playback chrominance signal
Red (———) :Recoridng audio signal
(- - - -) :Playback audio signal

(4) PC board layout

Orange	:Component side
Netted black (▒▒▒)	:Soldering side
Black	:Parts on component side
Blue	:Parts on soldering side

2. Equivalent circuits of digital transistor



3. Indications on circuit diagram

- ·Resistance is represented in ohms (Ω).
- ·Capacitane is represented in farads (F).
- ·Voltages of capacitor are 25 V unless otherwise specified.
- ·Wattage of resistor is 1/16 W unless otherwise specified.
- ·Voltages are measured with a degetal voltmeter.
- ·Waveform photographs are taken by using a 10:1 probe.
- ·IC No. in each C.B.A.s are listed on the bottom of diagrams.
- ·No. colored in blue are listed on the No. of waveform photographs.
- ·Voltage values indicated in circuit diagram are based on the following condition.

Camera section

Colorbar,standard angle of view,Adjust mode

Recorder section

Recording : Colorbar (pattern generator)

Playback : Self-recording Playback (Color bar)

INTERCONNECTION DIAGRAM

FRONT KEY C.B.A.	
CN2601	
1	EXPOSURE⊕ SW⊕
2	EXPOSURE⊖ SW⊕
3	CAMERA 5V

DIGITAL MEMORY C.B.A.	
CN2501	
1	SRAM-CS
2	DM-CS
3	CLOCK2
4	CGD-DATA
5	E5 or L3V
6	SEE THROUGH⊕
7	SAMPLE LEVEL
8	CG-STROBE1
9	GND
10	SS 5V
11	NC
12	NC
CN2502	
1	VIDEO (SAMPLE)
2	Y (MAIN OUT)
3	VIDEO (SAMPLE)
4	Y (MAIN OUT)
5	B-Y (MAIN OUT)
6	R-Y (MAIN OUT)
7	CP2
8	GND
9	CP2
10	GND
CN2503	
1	Y (DM OUT)
2	B-Y (DM OUT)
3	Y (DM OUT)
4	B-Y (DM OUT)
5	R-Y (DM OUT)
6	DM/CG BLK
7	GND
8	+1.8V
9	GND
10	+1.8V
CN2504	
1	CAMERA 5V
2	HD
3	CAMERA 5V
4	HD
5	VD
6	IRIS POSITION
7	Y IRIS
8	IRIS CONT
9	Y IRIS
10	IRIS CONT
CN2505	
1	D+
2	D-
3	C+
4	C-
5	OUT (-)
6	IN (-)
7	OUT (+)
8	IN (+)

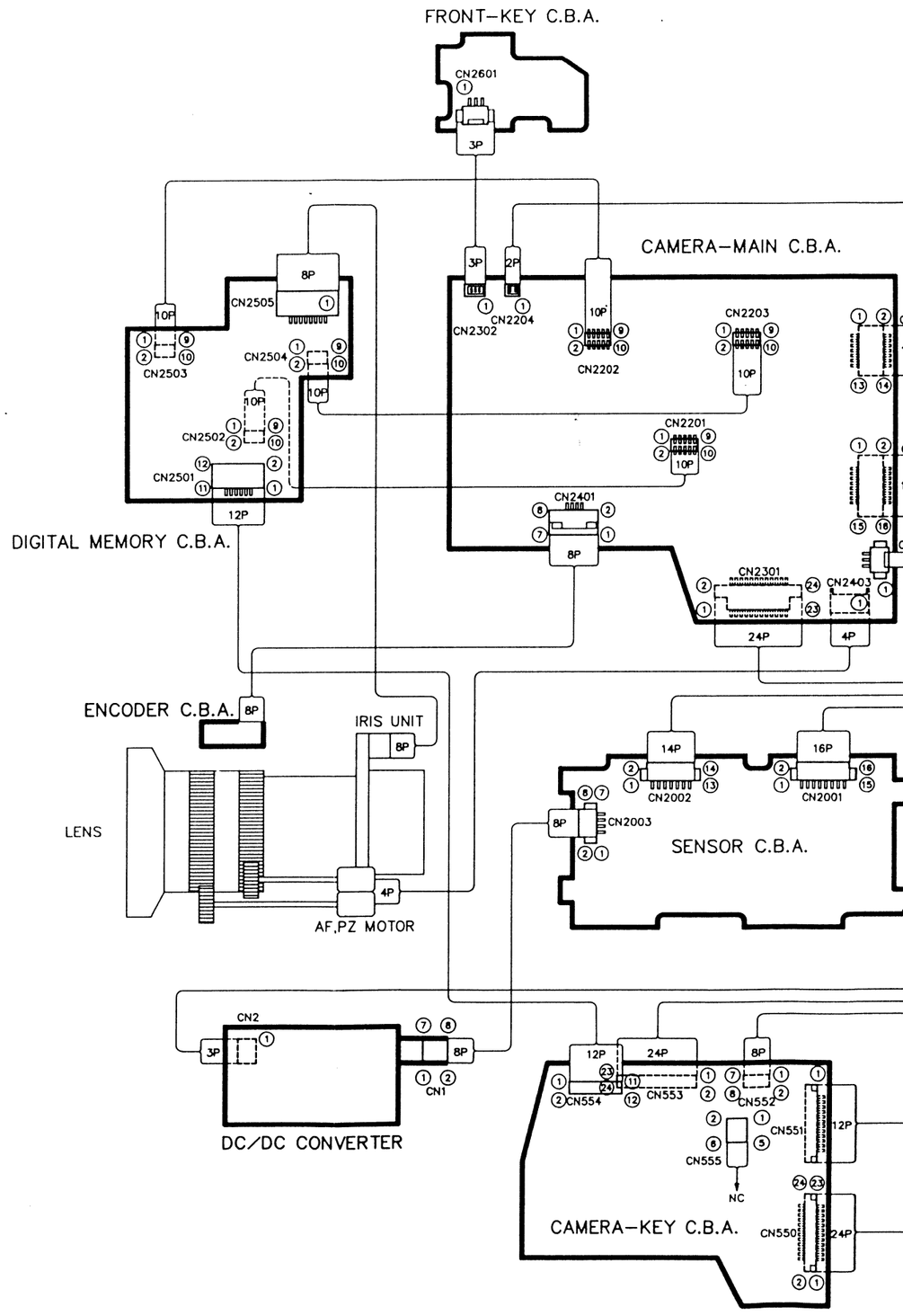
CAMERA-MAIN C.B.A.	
CN2101	
1	GND
2	CAMERA ON⊖
3	CP2+P BLK
4	SC
5	VD
6	GND
7	HD
8	SC (90)
9	BF
10	SYNC
11	GND
12	PLL
13	CP2
14	SHUTTER SPEED2
15	C BLK
16	SHUTTER SPEED1
CN2102	
1	S/H OUT
2	GND
3	YOH
4	FH/2
5	Y1H
6	CPos
7	COH
8	W BLK
9	C1H
10	CSP2
11	CP2+P BLK
12	CSP1
13	CAMERA 5V
14	GND
CN2201	
1	VIDEO (SAMPLE)
2	Y (MAIN OUT)
3	VIDEO (SAMPLE)
4	Y (MAIN OUT)
5	B-Y (MAIN OUT)
6	R-Y (MAIN OUT)
7	CP2
8	GND
9	CP2
10	GND
CN2202	
1	Y (DM OUT)
2	B-Y (DM OUT)
3	Y (DM OUT)
4	B-Y (DM OUT)
5	R-Y (DM OUT)
6	DM/CG BLK
7	GND
8	+1.8V
9	GND
10	+1.8V
CN2203	
1	CAMERA 5V
2	HD
3	CAMERA 5V
4	HD
5	VD
6	IRIS POSITION
7	Y IRIS
8	IRIS CONT
9	Y IRIS
10	IRIS CONT
CN2204	
1	CAMERA VIDEO
2	GND
CN2301	
1	MACRO⊕
2	AF FRAME
3	TELE
4	WIDE
5	AF MODE 0
6	AF MODE 1
7	FADE⊕
8	AWB LOCK⊖
9	SAMPLE FADE⊕
10	A-FADE
11	UNREG 6V
12	GND
13	LITHIUM 3V
14	GND
15	ZOOM SPEED
16	ZOOM ENC 0
17	ZOOM ENC 1
18	ZOOM ENC 2
19	AE0
20	AE1
21	AE2
22	SHUTTER SPEED2
23	SHUTTER SPEED1
24	CAMERA ON⊖
CN2302	
1	EXPOSURE⊕ SW⊕
2	EXPOSURE⊖ SW⊕
3	CAMERA 5V
CN2401	
1	FOCUS 0
2	LED5V
3	LED CONT
4	FOCUS 1
5	ZOOM 0
6	ZOOM 2
7	LED 5V
8	ZOOM 1
CN2402	
1	UNREG 6V
2	GND
3	LITHIUM 3V
CN2403	
1	TELE
2	WIDE
3	AF NEAR
4	AF FAR

CAMERA-KEY C.B.A.	
CN550	
1	GND
2	SS 5V
3	GND
4	SYSTEM-S
5	ME⊕ /MP⊖
6	MAIN-CS
7	V-STROBE
8	CLOCK1
9	M- RESET
10	S-DATA
11	V-DATA
12	S-DATA
13	CLOCK1
14	CASSETE DOWN⊖
15	EVF VIDEO
16	NOT USE
17	A-FADE
18	A-MUTE⊖
19	CHARACTER
20	AUDIO ON⊖
21	VTR ON⊖
22	VIDEO ON⊖
23	TEST KEY
24	EVF 5V

CN551	
1	EJECT SW⊖
2	-SW⊖
3	+SW⊖
4	KEY1
5	POWER SW⊖
6	WIDE SW⊖
7	TELE SW⊖
8	GND
9	VTR LED⊖
10	CAMERA LED⊖
11	SS 5V
12	NC
CN552	
1	EVF VIDEO
2	GND
3	EVF 5V
4	HD (EVF)
5	VD (EVF)
6	SS 5V
7	REMOCON
8	GND
CN553	
1	CAMERA ON⊖
2	SHUTTER SPEED1
3	SHUTTER SPEED2
4	AE2
5	AE1
6	AE0
7	ZOOM ENC 2
8	ZOOM ENC 1
9	ZOOM ENC 0
10	ZOOM SPEED
11	GND
12	LITHIUM 3V
13	GND
14	UNREG 6V
15	A-FADE
16	SAMPLE FADE⊕
17	AWB LOCK⊖
18	FADE⊕
19	AF MODE 1
20	AF MODE 0
21	WIDE
22	TELE
23	AF FRAME
24	MACRO⊕
CN554	
1	NC
2	NC
3	SS 5V
4	GND
5	CG-STROBE1
6	SAMPLE LEVEL
7	SEE THROUGH⊕
8	E5V or L3V
9	CGD-DATA
10	CLOCK2
11	DM-CS
12	SRAM-CS
CN555	
1	POWER SW⊖
2	GND
3	EVF VIDEO
4	NC
5	GND
6	UNREG 6V

DC/DC CONVERTER	
CN1	
1	+9V
2	+15V
3	CAMERA 5V
4	CAMERA 5V
5	GND
6	GND
7	-7V
8	CAMERA ON⊖
CN2	
1	UNREG 6V (15,9,-7V)
2	GND
3	UNREG 6V (C5V)

SENSOR C.B.A.	
CN2001	
1	GND
2	CAMERA ON⊖
3	CP2+C BLK
4	SC
5	VD
6	GND
7	HD
8	SC (90)
9	BF
10	SYNC
11	GND
12	PLL
13	CP2
14	SHUTTER SPEED2
15	C BLK
16	SHUTTER SPEED1
CN2002	
1	S/H OUT
2	GND
3	YOH
4	FH/2
5	Y1H
6	CPos
7	COH
8	W BLK
9	C1H
10	CSP2
11	CP2+P BLK
12	CSP1
13	CAMERA 5V
14	GND
CN2003	
1	+9V
2	+15V
3	CAMERA 5V
4	CAMERA 5V
5	GND
6	GND
7	-7V
8	CAMERA ON⊖



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N551	
1	EJECT SW
2	−SW
3	+SW
4	KEY1
5	POWER SW
6	WIDE SW
7	TELE SW
8	GND
9	VTR LED
0	CAMERA LED
1	SS 5V
2	NC

N552	
1	EVF VIDEO
2	GND
3	EVF 5V
4	HD (EVF)
5	VD (EVF)
6	SS 5V
7	REMOCON
8	GND

N553	
1	CAMERA ON
2	SHUTTER SPEED1
3	SHUTTER SPEED2
4	AE2
5	AE1
6	AE0
7	ZOOM ENC 2
8	ZOOM ENC 1
9	ZOOM ENC 0
0	ZOOM SPEED
1	GND
2	LITHIUM 3V
3	GND
4	UNREG 6V
5	A−FADE
6	SAMPLE FADE
7	AWB LOCK
8	FADE
9	AF MODE 1
0	AF MODE 0
1	WIDE
2	TELE
3	AF FRAME
4	MACRO

N554	
1	NC
2	NC
3	SS 5V
4	GND
5	CG−STROBE1
6	SAMPLE LEVEL
7	SEE THROUGH
8	E5V or L3V
9	CGD−DATA
0	CLOCK2
1	DM−CS
2	SRAM−CS

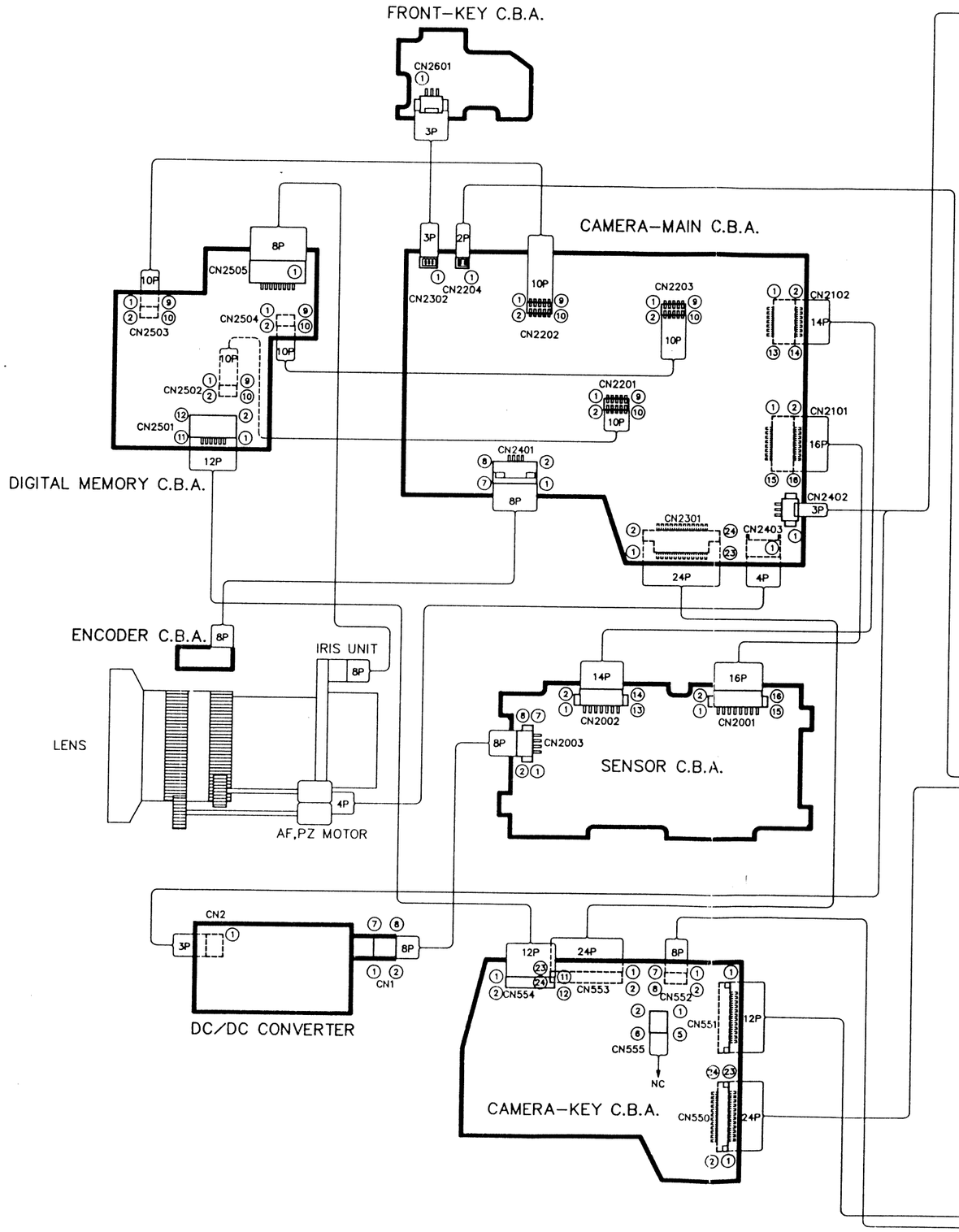
N555	
1	POWER SW
2	GND
3	EVF VIDEO
4	NC
5	GND
6	UNREG 6V

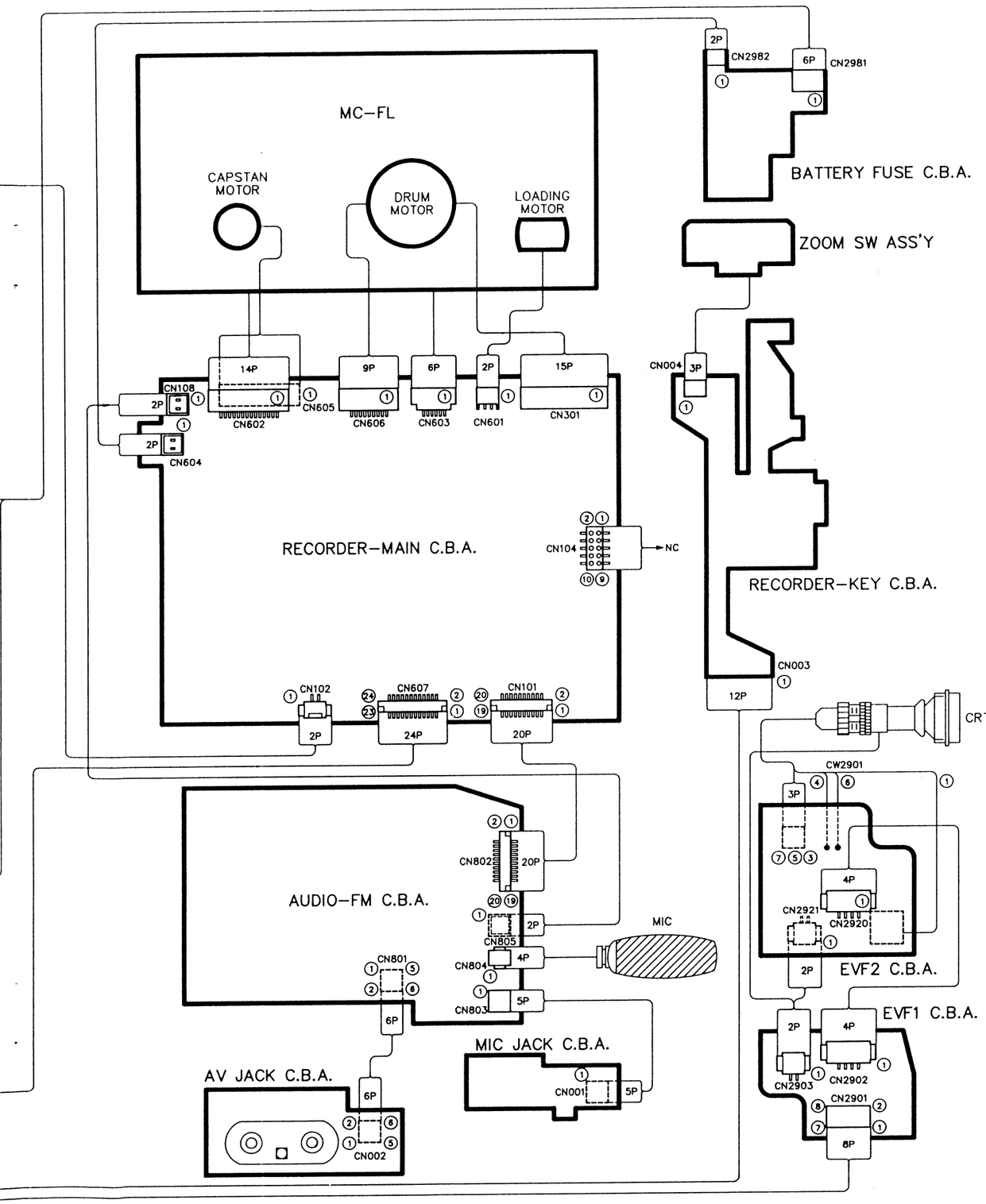
DC/DC CONVERTER	
1	
	+9V
	+15V
	CAMERA 5V
	CAMERA 5V
	GND
	GND
	−7V
	CAMERA ON
2	
	UNREG 6V (15,9,−7V)
	GND
	UNREG 6V (C5V)

SENSOR C.B.A.	
2001	
	GND
	CAMERA ON
	CP2+C BLK
	SC
	VD
	GND
	HD
	SC (90)
	BF
	SYNC
	GND
	PLL
	CP2
	SHUTTER SPEED2
	C BLK
	SHUTTER SPEED1
2002	
	S/H OUT
	GND

CN2003	
1	+9V
2	+15V
3	CAMERA 5V
4	CAMERA 5V
5	GND
6	GND
7	−7V
8	CAMERA ON

3	YOH
4	FH/2
5	Y1H
6	CPo
7	COH
8	W BLK
9	C1H
10	CSP2
11	CP2+P BLK
12	CSP1
13	CAMERA 5V
14	GND





RECORDER-MAIN C.B.A.	
CN101	
1	GND
2	UNREG 6V
3	A-FADE
4	A-MUTE Ⓗ
5	NOT USE
6	PB RF
7	AV PBⒽ
8	RF SWP
9	AUDIO ON Ⓛ
10	REC A-FM
11	NC
12	NC
13	NC
14	GND
15	VIDEO OUT
16	UNREG 6V
17	BATT.
18	VIDEO 5V
19	GND
20	GND
CN102	
1	CAMERA VIDEO
2	GND
CN104	
1	RF SWP
2	1/2 RF SWP
3	REC Y IN
4	PB RF CH2
5	GND
6	PB RF CH1
7	PB-RF
8	BATT.
9	REC Y MUTE
10	TEST KEY
CN108	
1	UNREG 6V
2	GND
CN301	
1	GND
2	VIDEO 5V
3	CH-1A
4	GND
5	CH-1B
6	VIDEO 5V
7	GND
8	VIDEO 5V
9	CH-2A
10	GND
11	CH-2B
12	VIDEO 5V
13	GND
14	GND
15	FE HEAD
CN601	
1	LOAD MTR (+)
2	LOAD MTR (-)
CN602	
1	BOT SENSⒽ
2	NC
3	EOT SENSⒽ
4	CASSETTE DOWNⓁ
5	S-REEL FG (-)
6	S-REEL FG (+)
7	T-REEL FG (-)
8	T-REEL FG (+)
9	TAPE SENS LED
10	SS5V
11	HALL ONⓁ
12	MEⒽ/MPⓁ
13	SAFETY TABⓁ
14	GND
CN603	
1	GND
2	DEWⒽ
3	MODE SW C
4	MODE SW B
5	MODE SW A
6	GND
CN604	
1	UNREG 6V
2	GND
CN605	
1	C-FG1
2	GND
3	C-FG2
4	SS 5V
5	W
6	GND
7	W-
8	W+
9	V-
10	V+
11	U-
12	U+
13	V
14	H+
15	U
CN606	
1	V
2	U
3	W
4	COM
5	GND
6	D-FG
7	FG/PG COM
8	D-PG
9	GND
CN607	
1	EVF 5V
2	TEST KEY
3	VIDEO ONⓁ
4	VTR ONⓁ
5	AUDIO ONⓁ
6	CHARACTER
7	A-MUTEⓁ
8	A-FADE
9	NOT USE
10	EVF VIDEO
11	CASSETE DOWNⓁ
12	CLOCK1
13	S-DATA
14	V-DATA
15	S-DATA
16	M- RESET
17	CLOCK1
18	V-STROBE
19	MAIN-CS
20	MEⒽ/MPⓁ
21	SYSTEM S
22	GND
23	SS 5V
24	GND

AUDIO FM C.B.A.	
CN801	
1	GND
2	VIDEO OUT
3	GND
4	AUDIO OUT
5	GND
6	VIDEO 5V
CN802	
1	GND
2	GND
3	VIDEO 5V
4	BATT.
5	UNREG 6V
6	VIDEO OUT
7	GND
8	NC
9	NC
10	NC
11	REC A-FM
12	AUDIO ONⓁ
13	RF SWP
14	AV PBⒽ
15	PB RF
16	NOT USE
17	A-MUTE Ⓗ
18	A-FADE
19	UNREG 6V
20	GND
CN803	
1	R CH
2	R CH OUT
3	L CH OUT
4	L CH
5	GND
CN804	
1	GND
2	L CH
3	R CH
4	GND
CN805	
1	UNREG 6V
2	GND

AV JACK C.B.A.	
CN002	
1	GND
2	VIDEO OUT
3	GND
4	AUDIO OUT
5	GND
6	VIDEO 5V

MIC JACK C.B.A.	
CN001	
1	R CH
2	R CH OUT
3	L CH OUT
4	L CH
5	GND

BATTERY FUSE C.B.A.	
CN2981	
1	LITHIUM 3V
2	GND
3	UNREG 6N (E5V)
4	UNREG 6V (C5V)
5	GND
6	UNREG 6V (15,9,-7V)
CN2982	
1	UNREG 6V
2	GND

RECORDER KEY C.B.A.	
CN003	
1	EJECT SWⓁ
2	-SWⓁ
3	+SWⓁ
4	KEY 1
5	POWER SWⓁ
6	WIDE SWⓁ
7	TELE SWⓁ
8	GND
9	VTR LEDⓁ
10	CAMERA LEDⓁ
11	SS 5V
12	NC
CN004	
1	GND
2	TELE SWⓁ
3	WIDE SWⓁ

EVF2 C.B.A.	
CN2920	
1	EVF 5V
2	EVF VIDEO
3	GND
4	HD (EVF)
CN2921	
1	H+
2	H-
CN2901	
1	H,V
2	-
3	K
4	G3
5	G1
6	G2
7	H

EVF1 C.B.A.	
CN2901	
1	GND
2	REMOCON
3	SS 5V
4	VD (EVF)
5	HD (EVF)
6	EVF 5V
7	GND
8	EVF VIDEO
CN2902	
1	EVF 5V
2	EVF VIDEO
3	GND
4	HD (EVF)
CN2903	
1	V+
2	V-

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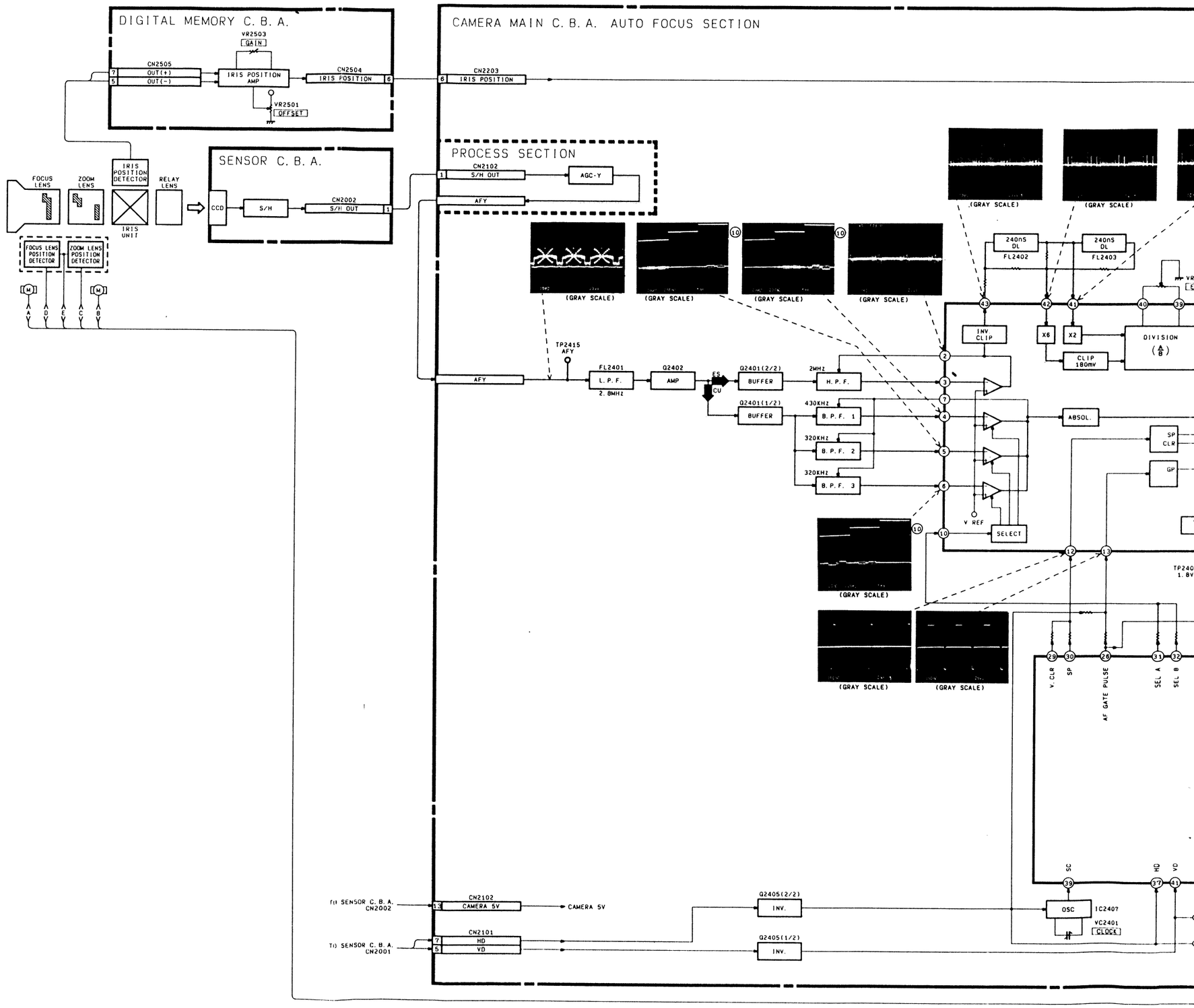
BLOCK DIAGRAM AUTO FOCUS SECTION



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N

o SIGNAL PATH ES/CU SIGNAL

MORY C. B. A.

VR2503 [GAIN]

IRIS POSITION AMP

CN2504 IRIS POSITION 6

VR2501 OFFSET

SENSOR C. B. A.

CCD

S/H

CN2002 S/H OUT 1

CAMERA MAIN C. B. A. AUTO FOCUS SECTION

CN2203 6 IRIS POSITION

PROCESS SECTION

CN2102 1 S/H OUT

AGC-Y

AFY

TP2404 IRIS POSITION

60 IRIS POSITION

(GRAY SCALE) (GRAY SCALE) (GRAY SCALE)

GND (GRAY SCALE. IN FOCUS) GND (GRAY SCALE. IN FOCUS)

GND (LENS CAP) GND (LENS CAP)

(GRAY SCALE) (GRAY SCALE) (GRAY SCALE) (GRAY SCALE)

240nS DL FL2402

240nS DL FL2403

VR2401 ES OFFSET

43 42 41 40 39

INV. CLIP

X6 X2

CLIP 180mV

DIVISION (A/B)

GATE PEAK HOLD (H) PEAK HOLD (V) SAMPLE HOLD X(-2) 31 61 ES

TP2415 AFY

AFY

FL2401 L. P. F. 2. 8MHZ

Q2402 AMP

ES CU

Q2401(2/2) BUFFER 2MHZ H. P. F.

Q2401(1/2) BUFFER 430KHZ B. P. F. 1 320KHZ B. P. F. 2 320KHZ B. P. F. 3

ABSOL.

GATE PEAK HOLD (H) PEAK HOLD (V) SAMPLE HOLD X(-2) 30 62 CU

SP CLR

GP

IC2401 LD5077 ANALOG IC

IC2402 AF MI-COM

V REF

SELECT

V REF. 1. 8V

REF 3. 6V

TP2402 1. 8V

(GRAY SCALE)

(GRAY SCALE) (GRAY SCALE)

68 DA VREF

69 AD VREF

3. 6V

29 30 26 31 32 20 19

V. CLR SP AF GATE PULSE SEL A SEL B ES PEAK CU PEAK

(GRAY SCALE) (GRAY SCALE)

AF FRAME 43

INTERRUPT 44

DATA READ 11

DATA WRITE 10

ADDRESS READ 9

ADD 8

AD7 1

19 INTERRUPT

13 DATA READ

12 DATA WRITE

14 ADDRESS READ

11 ADD

4 AD7

SC HD VD NTSC Ⓝ PAL Ⓟ

39 37 41 36

OSC IC2407

VC2401 CLOCK

TP2412 VD

TP2413 HD

NTSC Ⓝ

TO SENSOR C. B. A. CN2002

CN2102 13 CAMERA 5V

CAMERA 5V

Q2405(2/2) INV.

TO SENSOR C. B. A. CN2001

CN2101 7 HD 5 VD

Q2405(1/2) INV.

o SIGNAL PATH ES/CU SIGNAL

TP2404 IRIS POSITION

60 IRIS POSITION

SCALE)

GND (GRAY SCALE. IN FOCUS) GND

GND (GRAY SCALE. IN FOCUS) GND

GND (LENS CAP)

GND (LENS CAP) GND

GATE PEAK HOLD (H) PEAK HOLD (V) SAMPLE HOLD X(-2) 31 61 ES

GATE PEAK HOLD (H) PEAK HOLD (V) SAMPLE HOLD X(-2) 30 62 CU

IC2401
LD5077
ANALOG IC

REF 3.6V

34 27 21

68 DA VREF.

69 AD VREF.

3.6V

20 19

ES PEAK CU PEAK

(GRAY SCALE) (GRAY SCALE)

AF FRAME 43

INTERRUPT 44 19 INTERRUPT

DATA READ 11 13 DATA READ

DATA WRITE 10 12 DATA WRITE

ADDRESS READ 9 14 ADDRESS READ

ADD 8 11 ADD

AD7 1 4 AD7

NTSC ⊖ /PAL ◯

16

IC2402
AF MI-COM

X OUT 29

X2401 10MHZ

X IN 28

IC2405 SC14581F DISPLAY SW

AF FRAME ON (H) 15

CN2301 AF FRAME 2 → (SYSCON-SERVO SECTION) TO CAMERA-KEY C. B. A. CN553

LENS CAP (H) 50

LENS CAP (H) → FROM PROCESS SECTION IC2303-3PIN

MODE \ INPUT SEG	AF MODE 0	AF MODE 1
AF	L	L
ATF	L	H
MANUAL	H	L

MODE \ INPUT SEG	WIDE	TELE
TELE	L	H
WIDE	H	L
STOP	L	L

ZOOM ENC 0 46

ZOOM ENC 1 45

ZOOM ENC 2 44

MACRO (H) 34

ZOOM SPEED HIGH (L) 33

AF MODE 0 37

AF MODE 1 10

WIDE 39

TELE 40

CN2301
ZOOM ENC 0 16
ZOOM ENC 1 17
ZOOM ENC 2 18
MACRO (H) 1
ZOOM SPEED HIGH (L) 15
AF MODE 0 5
AF MODE 1 6
WIDE 4
TELE 3
→ (SYSCON-SERVO SECTION) TO CAMERA-KEY C. B. A. CN553

CN2402 UNREG 6V 1 → FROM BATTERY FUSE C. B. A. CN2981

AF SPEED LEF. 67

IC2404 LB1830M ZOOM MOTOR DRIVER

VS 5

MOTER DRIVE 6 10 9 2 4

AF FAR 48

AF NEAR 49

CN2403
AF FAR 4
AF NEAR 3
WIDE 2
TELE 1
A B

ZOOM SPEED LEF. 66

IC2403 LB1830M ZOOM MOTOR DRIVER

VS 5

MOTER DRIVE 6 10 9 2 4

WIDE 42

TELE 43

CAMERA 5V

Q2404 LED 5V

LED CONT. 51

Q2403 KED CONT.

CN2401
LED 5V 2
LED 5V 7
LED CONT. 3
FOCUS 0 1
FOCUS 1 4
ZOOM 2 6
ZOOM 1 8
ZOOM 0 5
E D C

FOCUS 0 53

FOCUS 1 52

ZOOM 2 57

ZOOM 1 56

ZOOM 0 55

IC2304 PST529CMT RESET

RESET (L) 26

D2302

3 RESET 1 2

CAMERA 5V

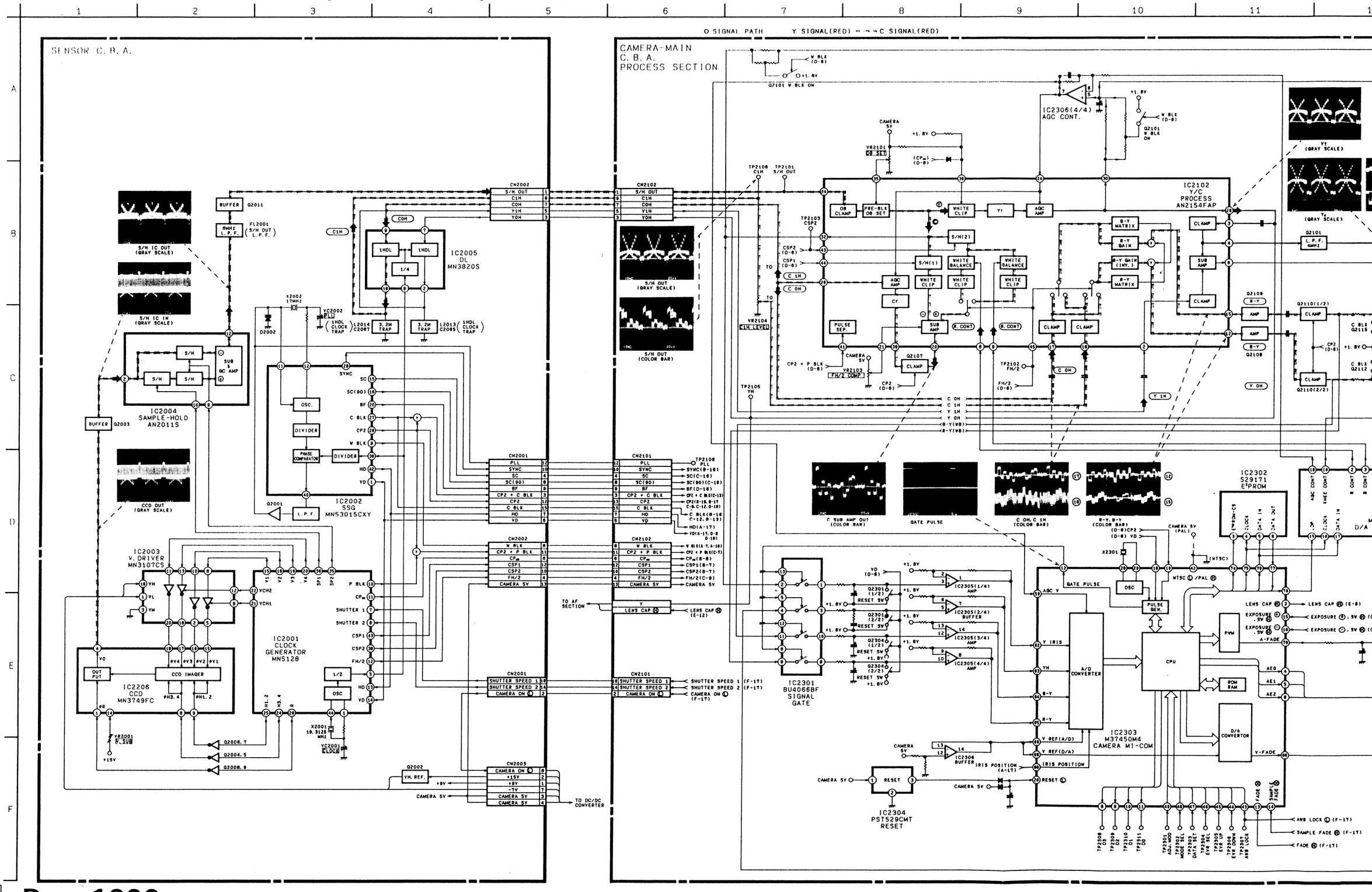
NTSC (H) /PAL (L) 74

NTSC AF 5V

(PAL)

01 Dec. 1990

BLOCK DIAGRAM SENSOR, PROCESS, DM SECTION



01 Dec. 1990

N

6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18

O SIGNAL PATH — Y SIGNAL(RED) — C SIGNAL(RED)

-MAIN

3 SECTION

W. BLK (D-8)
+1.8V
Q2101 W BLK ON

IC2306(4/4) AGC CONT.

CAMERA 5V
VR2101 OB SET
(CP2) (D-8)

TP2108 C1H
TP2101 S/H OUT

IC2102 Y/C PROCESS AN2154FAP

OB CLAMP
PRE-BLK OB SET
WHITE CLIP
Yr
AGC AMP
B-Y MATRIX
R-Y GAIN
R-Y MATRIX
S/H(2)
S/H(1)
WHITE BALANCE
SUB AMP
CLAMP
Cr
PULSE SEP.
R. CONT
Q2107
CP2 + P BLK (D-8)
VR2103 FH/2 COMP
CP2 (D-8)
TP2102 FH/2
FH/2 (D-8)
TP2105 Yh
C 1H
C OH
Y 1H
Y OH
(B-Y(VB))
(R-Y(VB))

Yr (GRAY SCALE)
Yb (GRAY SCALE)
R-Y, B-Y (COLOR BAR)

Q2101 L.P.F. 4MHz

Q2110(1/2)
Q2110(2/2)
C BLK Q2115
C BLK Q2112
CLIP Q2116
Q2109 R-Y AMP
Q2108 B-Y AMP

C SUB AMP OUT (COLOR BAR)
GATE PULSE
C OH, C 1H (COLOR BAR)
R-Y, B-Y (COLOR BAR)

TP2108 PLL
SYNC (B-18)
SC (C-18)
SC(90) (C-18)
BF (D-18)
CP2 + C BLK (C-13)
CP2 (B-16, B-17, C-8, C-12, D-18)
C BLK (B-18, C-12, B-13)
HD (A-17)
VD (A-17, D-8, D-18)
W BLK (A-7, A-18)
CP2 + P BLK (C-7)
CPm (B-8)
CSP1 (B-7)
CSP2 (B-7)
FH/2 (C-8)
CAMERA 5V

LENS CAP (E-12)

IC2301 BU4066BF SIGNAL GATE

SHUTTER SPEED 1 (F-17)
SHUTTER SPEED 2 (F-17)
CAMERA ON (F-17)

VD (D-8)
Q2301 (1/2) RESET SW
Q2301 (2/2) RESET SW
Q2304 (1/2) RESET SW
Q2304 (2/2) RESET SW
IC2305(1/4) AMP
IC2305(2/4) BUFFER
IC2305(3/4) AMP
IC2305(4/4) AMP

IC2304 PST529CMT RESET

IC2303 M37450M4 CAMERA MI-COM

A/D CONVERTER
CPU
ROM RAM
D/A CONVERTOR
PWM
OSC
PULSE GEN.

AGC V
Y IRIS
YH
B-Y
R-Y
V REF(A/D)
V REF(D/A)
IRIS POSITION
RESET

IC2302 S29171 E²PROM
EPROM-CS CLOCK DATA IN DATA OUT

IC2308 M88346 D/A CONVERTER
AGC CONT. KNEE CONT. R CONT. B CONT. R GAIN B GAIN IRIS CONT.
LDP CLOCK DATA IN

X2301
(NTSC)
NTSC Ⓘ /PAL Ⓜ
CAMERA 5V (PAL)
(D-8) CP2
(D-8) VD

LENS CAP Ⓜ (E-8)
EXPOSURE Ⓘ .SW Ⓜ (C-17)
EXPOSURE Ⓜ .SW Ⓘ (C-17)
A-FADE
IC2306(3/4) BUFFER
A-FADE (F-17)

AE0 AE1 AE2
V-FADE
V-FADE (B-16)

TP2308 D3
TP2309 D2
TP2310 D1
TP2311 D0
TP2301 AGC MOD
TP2302 MODE SEL
TP2303 DATA SET
TP2304 EVR SEL
TP2305 EVR UP
TP2306 EVR DOWN
TP2307 AWB LOCK
FADE Ⓜ
SAMPLE FADE Ⓜ
AWB LOCK Ⓘ (F-17)
SAMPLE FADE Ⓜ (F-17)
FADE Ⓜ (F-17)

C BLK (D-8)
D2202
H-LUMI SUP-C
L-LUMI SUP-C
L-LUMI SUP-AP
CLAMP
FADE
CP2 (D-8)
Q2408 Q2410
Q2210
Q2214 Q2215
BUFFER
WHITE CLIP KNEE
TP2201 W.CLIP
TP2207 DM/CG BLK

FL2201 DL
L.P.F.
H-AP. GAIN
H-AP. L-CLIP
Y-AP. CLIP
AP-LOW LUMI. SUP.
CAMERA 5V
TP2204 R-Y C. B.
VR2201 R-Y C. B.
TP2203 B-Y C. B.
VR2202 B-Y C. B.

IC2201 ENCORDER AN2254FAP

CARRIER BALANCE (R-Y)
CARRIER BALANCE (B-Y)
R-L-LUMI SUP
FADE
PULSE SEP.
+1.8V REG.
CP2 + C BLK (D-8)

H-CLIP
PED L-CLIP
CLAMP
AMP 6dB
WHITE FADE
V-FADE (F-13)
C BLK (D-8)
SYNC (D-8)
TP2205 R-Y
TP2202 VIDEO

GAIN CONT.
MOD.
CLAMP
ADD
TP2206 B-Y
HUE
BURST AMP
BURST MOD.
TP2104 SC
SC (D-8)
SC90 (D-8)
CAMERA 5V
VR2203 BURST Ø
VC2201 SC/90
BF (D-8)

IC2202 MC74HC4053F Y. BLK SW
CAMERA 5V
+1.8V

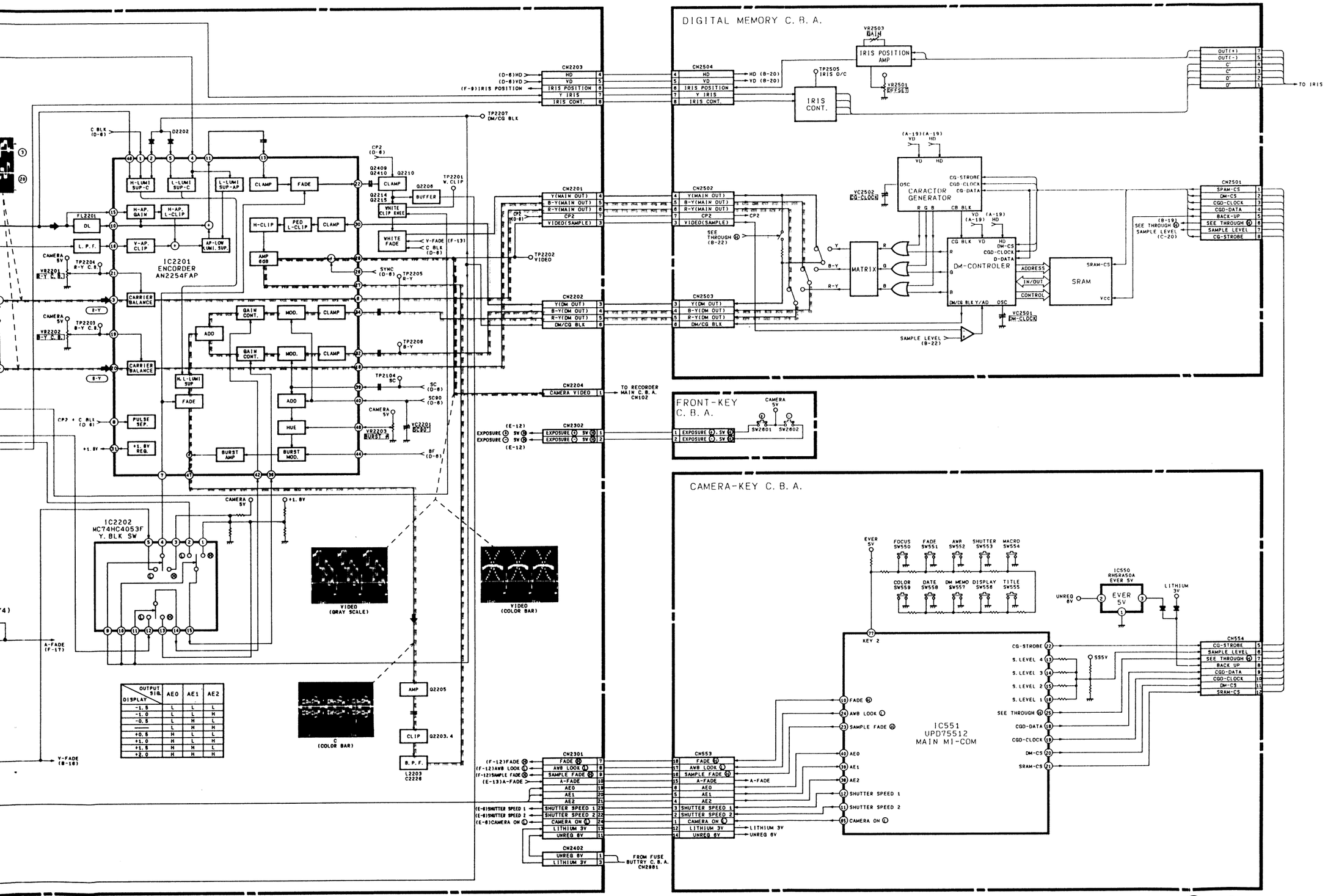
VIDEO (GRAY SCALE)
VIDEO (COLOR BAR)
C (COLOR BAR)

AMP Q2205
CLIP Q2203.4
B.P.F. L2203 C2226

OUTPUT SIG. / DISPLAY	AE0	AE1	AE2
-1.5	L	L	L
-1.0	L	L	H
-0.5	L	H	L
———	L	H	H
+0.5	H	L	L
+1.0	H	L	H
+1.5	H	H	L
+2.0	H	H	H

DIGITAL MEMO

CN2203: HD, VD, IRIS POSITION, Y IRIS, IRIS CONT.
(D-8)HD, (D-8)VD, (F-9)IRIS POSITION
CN2504
CN2201: Y(MAIN OUT), B-Y(MAIN OUT), R-Y(MAIN OUT), CP2, VIDEO(SAMPLE)
CN2502
CN2202: Y(DM OUT), B-Y(DM OUT), R-Y(DM OUT), DM/CG BLK
CN2503
CN2204: CAMERA VIDEO → TO RECORDER MAIN C.B.A. CN102
CN2302: EXPOSURE Ⓘ 5V, EXPOSURE Ⓜ 5V (E-12)
SW2601
FRONT-KEY C.B.A.
CAMERA-KEY C.B.A.
CN553
CN2301: FADE Ⓜ, AWB LOCK Ⓘ, SAMPLE FADE Ⓜ, A-FADE, AE0, AE1, AE2, SHUTTER SPEED 1, SHUTTER SPEED 2, CAMERA ON Ⓘ, LITHIUM 3V, UNREG 8V
(F-12)FADE Ⓜ, (F-12)AWB LOCK Ⓘ, (F-12)SAMPLE FADE Ⓜ, (E-13)A-FADE, (E-8)SHUTTER SPEED 1, (E-8)SHUTTER SPEED 2, (E-8)CAMERA ON Ⓘ
CN2402: UNREG 8V, LITHIUM 3V → FROM FUSE BUTTRY C. B. A. CN2881



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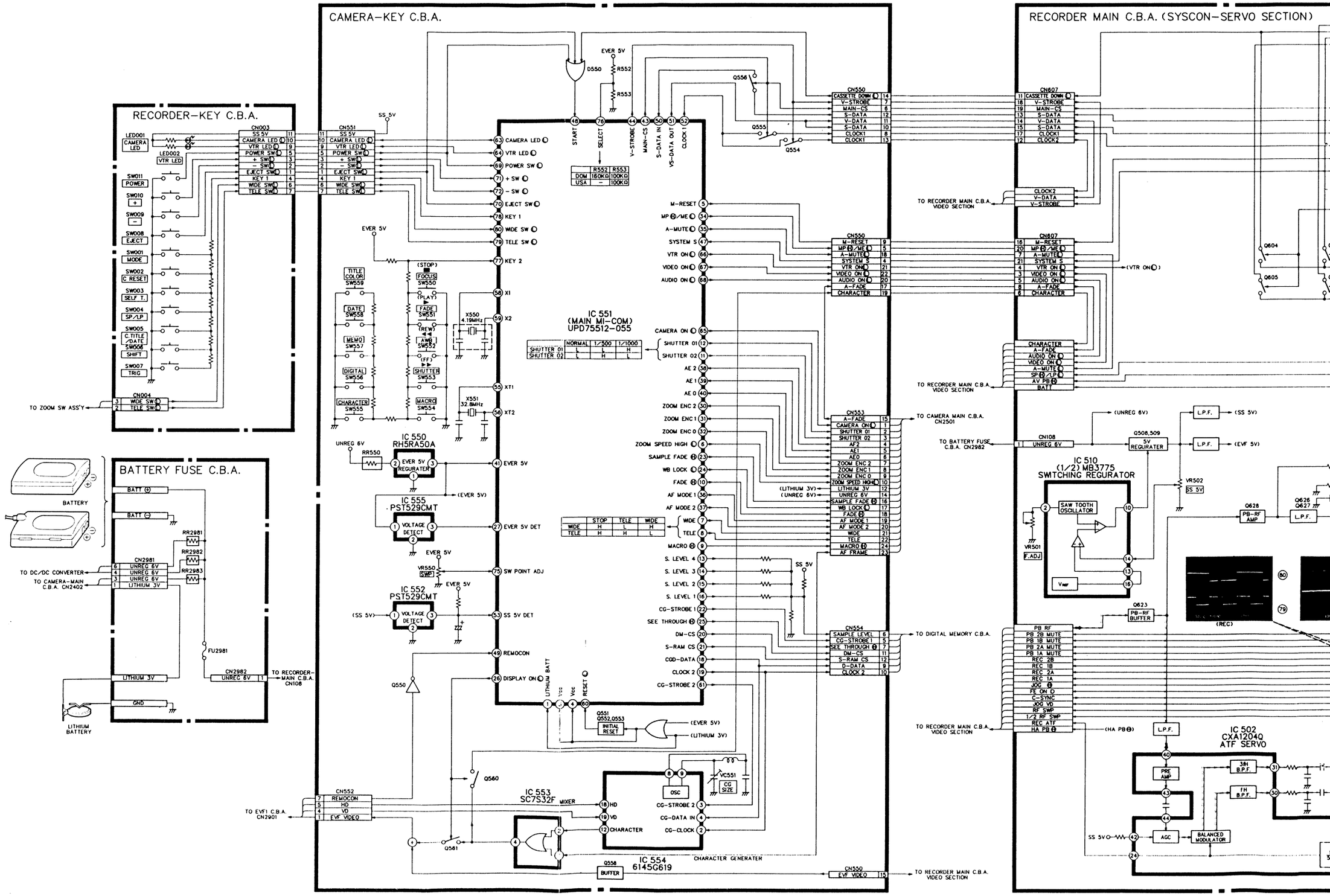
BLOCK DIAGRAM SYSCON-SERVO SECTION



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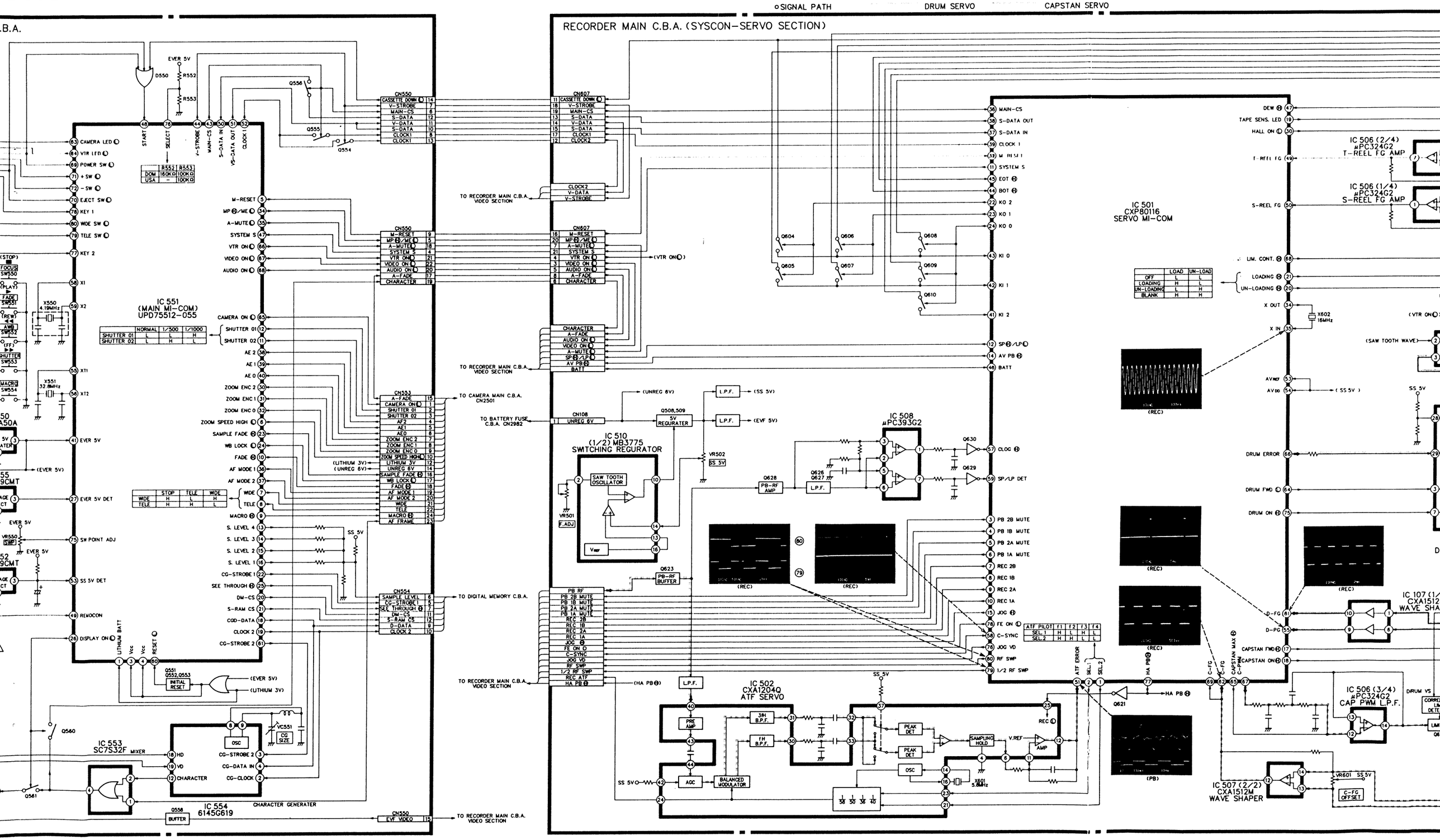

o SIGNAL PATH
DRUM SERVO
CAPSTAN SERVO
RECORDER MAIN C.B.A. (SYSCON-SERVO SECTION)
C.B.A.
IC 551
(MAIN MI-COM)
UPD75512-055
IC 553
SC7S32F MIXER
IC 554
6145G619
CHARACTER GENERATOR
IC 510
(1/2) MB3775
SWITCHING REGURATOR
IC 508
μPC393G2
IC 502
CXA1204Q
ATF SERVO
IC 501
CXP80116
SERVO MI-COM
IC 506 (2/4)
μPC324G2
T-REEL FG AMP
IC 506 (1/4)
μPC324G2
S-REEL FG AMP
IC 506 (3/4)
μPC324G2
CAP PWM L.P.F.
IC 507 (2/2)
CXA1512M
WAVE SHAPER
IC 107 (1/
CXA1512
WAVE SHA
CN550
CN607
CN554
CN533
CN108
CN2501
CN2982
CN2501
TO RECORDER MAIN C.B.A. VIDEO SECTION
TO CAMERA MAIN C.B.A. CN2501
TO BATTERY FUSE C.B.A. CN2982
TO DIGITAL MEMORY C.B.A.
TO RECORDER MAIN C.B.A. VIDEO SECTION
(VTR ON)
(UNREG 6V)
(5S 5V)
(EVF 5V)
(LITHIUM 3V)
(HA PB)
(REC)
(PB)
(SAW TOOTH WAVE)
(5S 5V)
L.P.F.
5V REGURATER
PB-RF AMP
PB-RF BUFFER
SAW TOOTH OSCILLATOR
F.ADJ
VR501
VR502
5S 5V
SW POINT ADJ
VR550
REMOCON
DISPLAY ON
CAMERA LED
VTR LED
POWER SW
+ SW
- SW
EJECT SW
KEY 1
KEY 2
WIDE SW
TELE SW
EVER 5V
EVER 5V DET
5S 5V DET
LITHIUM BATT
INITIAL RESET
Q551
Q552,Q553
Q554
Q555
Q556
Q558
Q560
Q561
Q604
Q605
Q606
Q607
Q608
Q609
Q610
Q621
Q623
Q626
Q627
Q628
Q629
Q630
Q508,509
X550
4.19MHz
X551
32.8MHz
X602
16MHz
VC551
CG SIZE
OSC
BUFFER
SHUTTER 01
SHUTTER 02
NORMAL
1/500
1/1000
R552
R553
DOM
USA
160KΩ
100KΩ
STOP
TELE
WIDE
LOAD
UN-LOAD
OFF
LOADING
UN-LOADING
BLANK
ATF PILOT
SEL 1
SEL 2
f1
f2
f3
f4
CASSETTE DOWN
V-STROBE
MAIN-CS
S-DATA
V-DATA
CLOCK1
CLOCK2
M-RESET
MP Φ/ME
A-MUTE
SYSTEM S
VTR ON
VIDEO ON
AUDIO ON
A-FADE
CHARACTER
CAMERA ON
SHUTTER 01
SHUTTER 02
AE 2
AE 1
AE 0
ZOOM ENC 2
ZOOM ENC 1
ZOOM ENC 0
ZOOM SPEED HIGH
SAMPLE FADE
WB LOCK
FADE
AF MODE 1
AF MODE 2
S. LEVEL 4
S. LEVEL 3
S. LEVEL 2
S. LEVEL 1
CG-STROBE 1
SEE THROUGH
DM-CS
S-RAM CS
CGD-DATA
CLOCK 2
CG-STROBE 2
SAMPLE LEVEL
CG-STROBE1
SEE THROUGH
DM-CS
S-RAM CS
D-DATA
CLOCK 2
AF2
AE1
AE0
ZOOM SPEED HIGH
LITHIUM 3V
UNREG 6V
SAMPLE FADE
WB LOCK
FADE
AF MODE 1
AF MODE 2
WIDE
TELE
MACRO
AF FRAME
EVF VIDEO
MAIN-CS
S-DATA OUT
S-DATA IN
CLOCK 1
M RESET
SYSTEM S
EOT
BOT
KO 2
KO 1
KO 0
KI 0
KI 1
KI 2
SP Φ/LP
AV PB
BATT
PB 2B MUTE
PB 1B MUTE
PB 2A MUTE
PB 1A MUTE
REC 2B
REC 1B
REC 2A
REC 1A
JOG
FE ON
C-SYNC
JOG VD
RF SWP
1/2 RF SWP
REC ATF
HA PB
CLOG
SP/LP DET
DEW
TAPE SENS. LED
HALL ON
T-REEL FG
S-REEL FG
LIM. CONT.
LOADING
UN-LOADING
X OUT
X IN
AVREF
AVDD
DRUM ERROR
DRUM FWD
DRUM ON
D-FG
D-PG
CAPSTAN FWD
CAPSTAN ON
ATF ERROR
SEL.1
SEL.2
C-FG
CAPSTAN MAX
C-PWM
DRUM VS
VR601 5S.5V
C-FG OFFSET
CORRE
LIN
DETE
LIM
Q6
XTAL
SYSCON
SERVO
RESET
Vcc
Vcc
VRef
PRE AMP
AGC
BALANCED MODULATOR
38H B.P.F.
1H B.P.F.
PEAK DET
PEAK DET
SAMPLING HOLD
V.REF
AMP
REC
PB-RF AMP
L.P.F.
L.P.F.
L.P.F.
L.P.F.
X601
5.6MHz

DRUM SERVO

CAPSTAN SERVO

IC 501
CXP80116
SERVO MI-COM

	LOAD	UN-LOAD
OFF	L	L
LOADING	H	L
UN-LOADING	L	H
BLANK	H	H

ATF PILOT	f1	f2	f3	f4
SEL. 1	H	L	H	L
SEL. 2	H	H	L	L

IC 508
μPC393G2

IC 506 (2/4)
μPC324G2
T-REEL FG AMP

IC 506 (1/4)
μPC324G2
S-REEL FG AMP

IC 506 (3/4)
μPC324G2
CAP PWM L.P.F.

IC 509
NJM311
PWM MOD.

IC 504
CXA8006M
DRUM MOTOR DRIVE. AMP

IC 505
MPC1710
LOADING MOTOR
DRIVE

IC 503
CXA1127M
CAPSTAN MOTOR
DRIVE

IC 507 (2/2)
CXA1512M
WAVE SHAPER

IC 107 (1/2)
CXA1512M
WAVE SHAPER

IC 510 (2/2)
MB3775
SWITCHING
REGURATOR

X602
16MHz

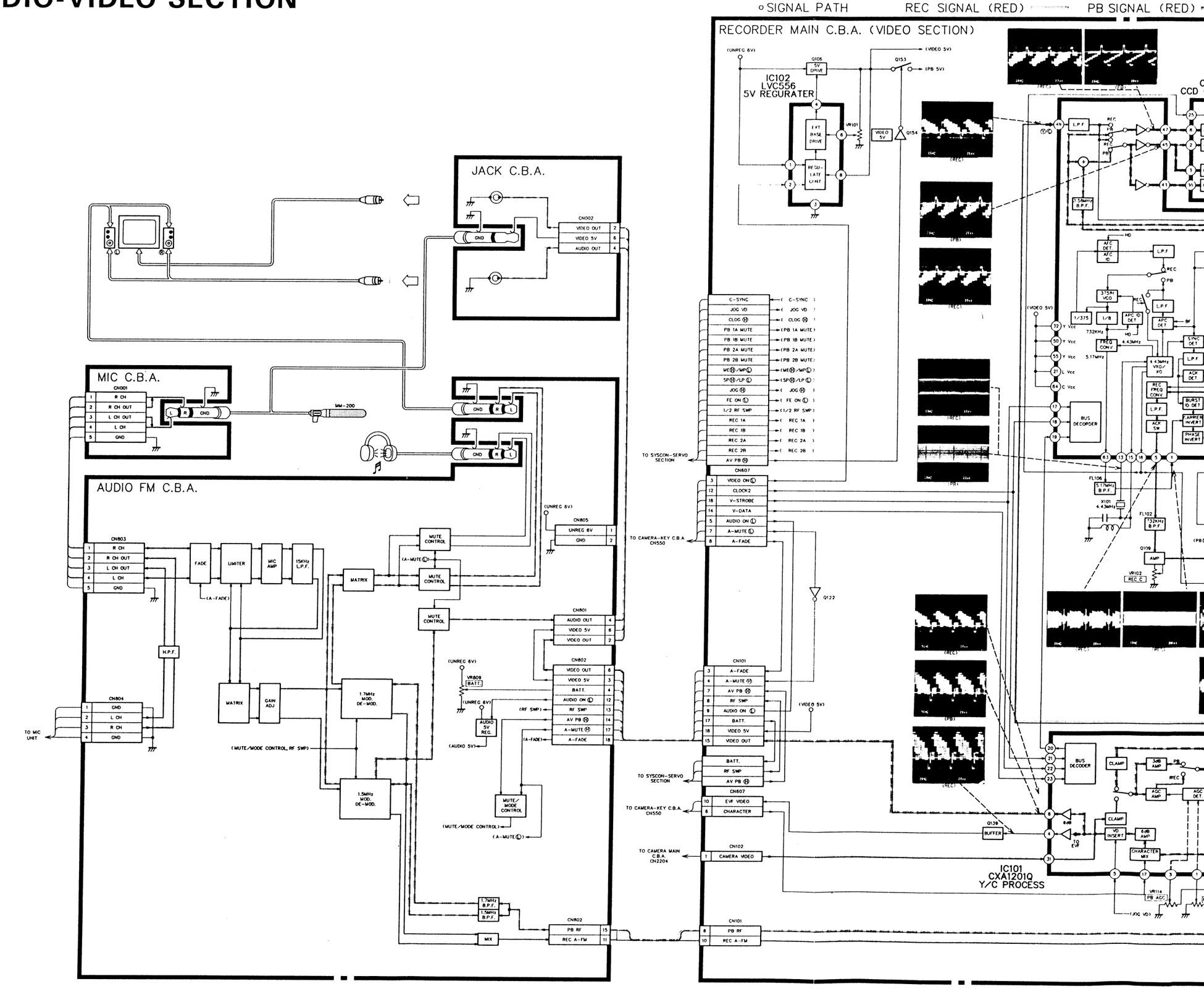
X601
5MHz

(REC)

(PB)

ME/MP TAPE SW
CASSETTE DOWN SW
SAFETY TAB SW
MODE SWITCH
DEW SENSOR
BOT SENSOR
EOT SENSOR
(SS 5V)
T REEL (+)
T REEL (−)
HALL
S REEL (+)
S REEL (−)
HALL
LOADING MOTOR
DRUM MOTOR
FG/PG HEAD
CAPSTAN MOTOR
FG HEAD

BLOCK DIAGRAM AUDIO-VIDEO SECTION



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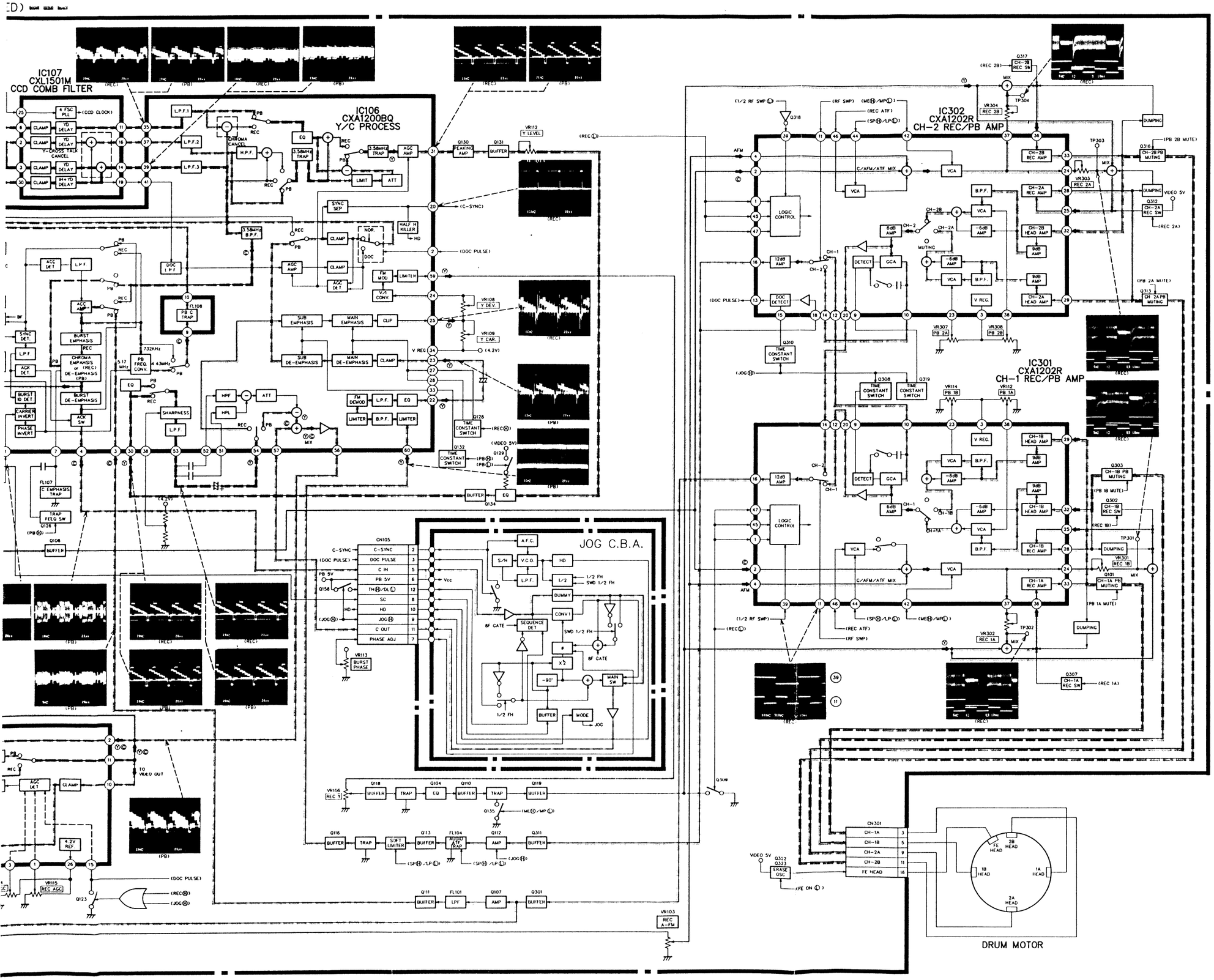

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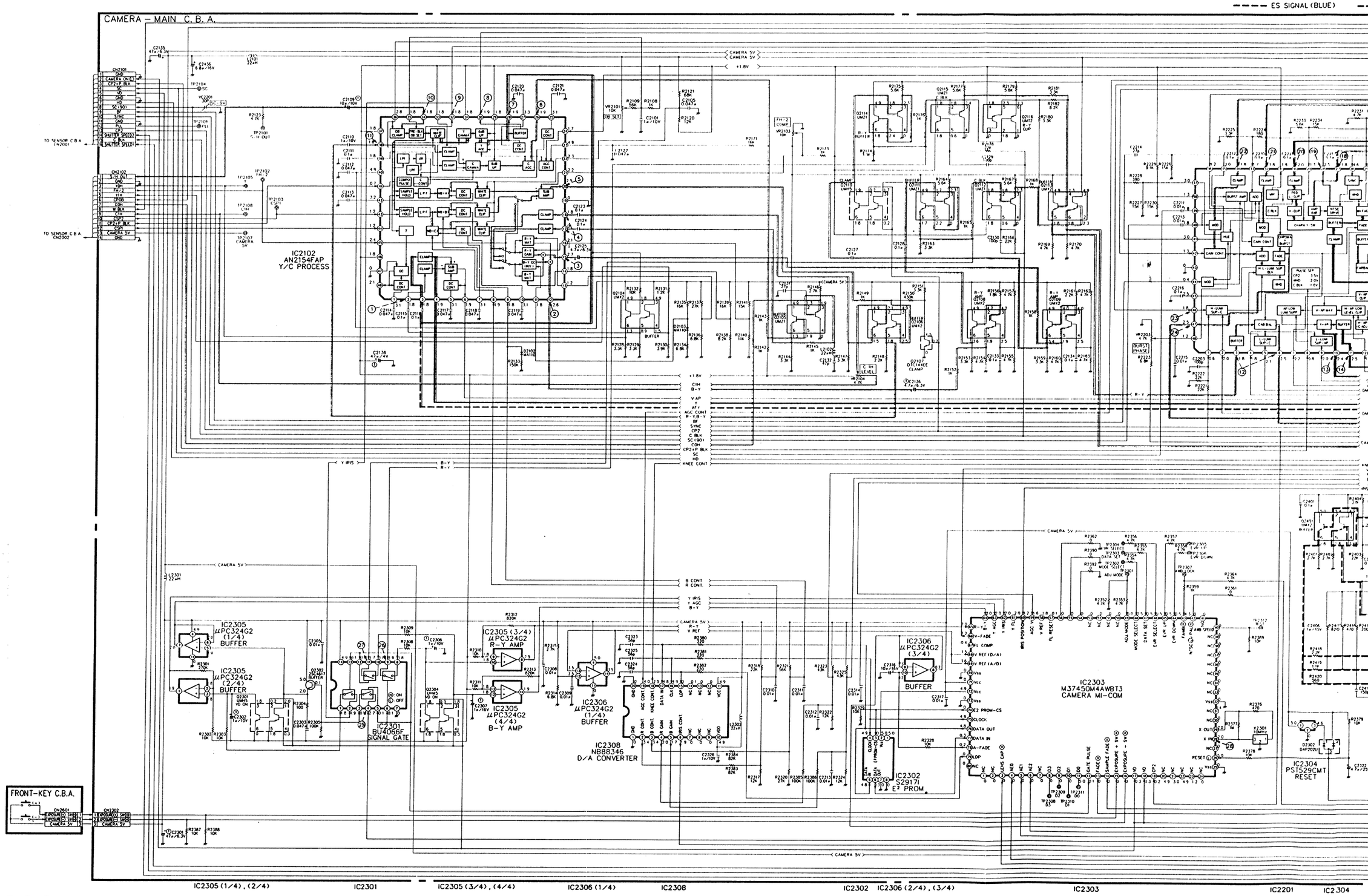
SCHEMATIC DIAGRAM CAMERA MAIN C.B.A.



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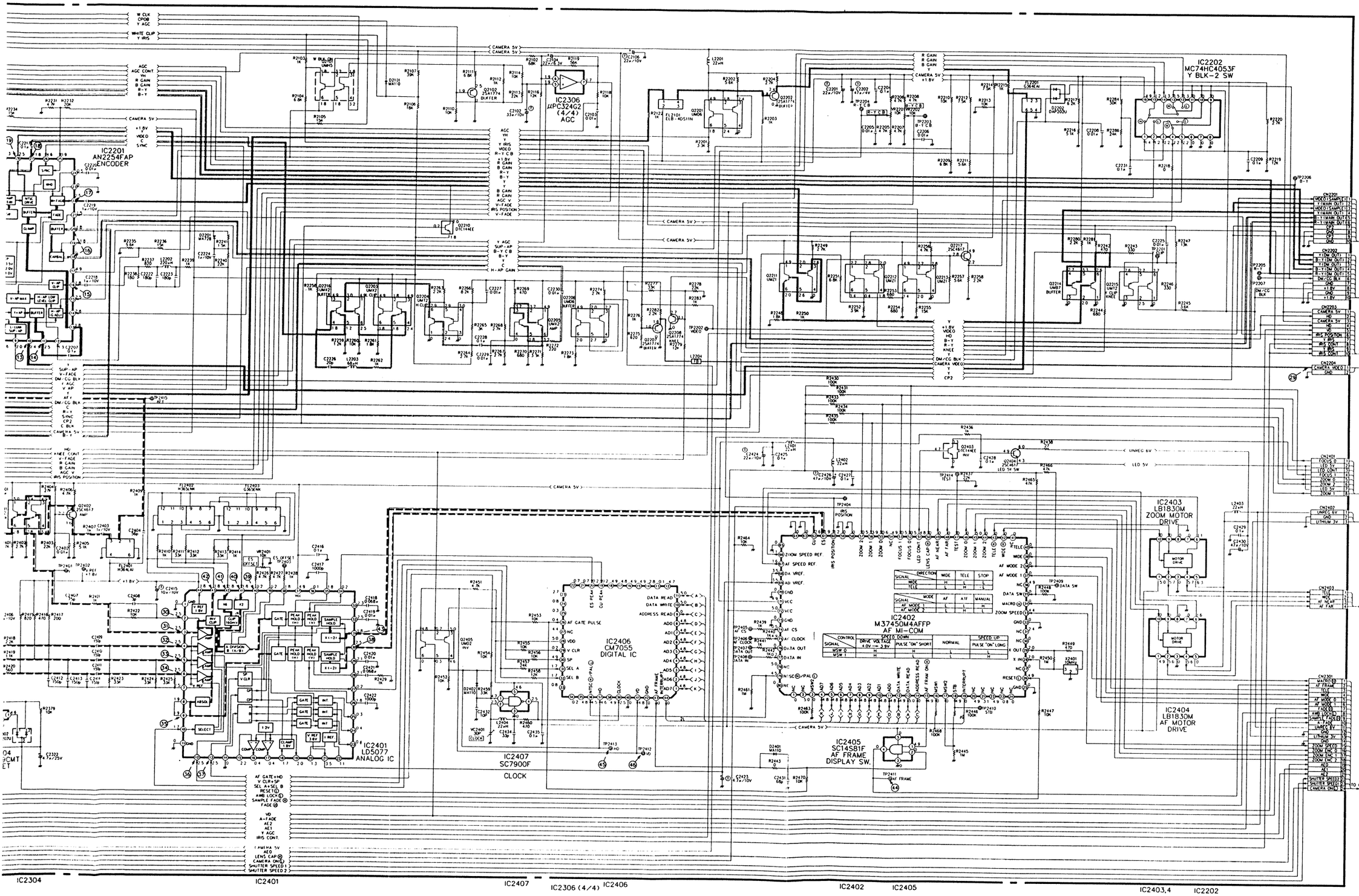
BLUE) ——— C SIGNAL (ORANGE)
(BLUE) - - - - CU SIGNAL (ORANGE)



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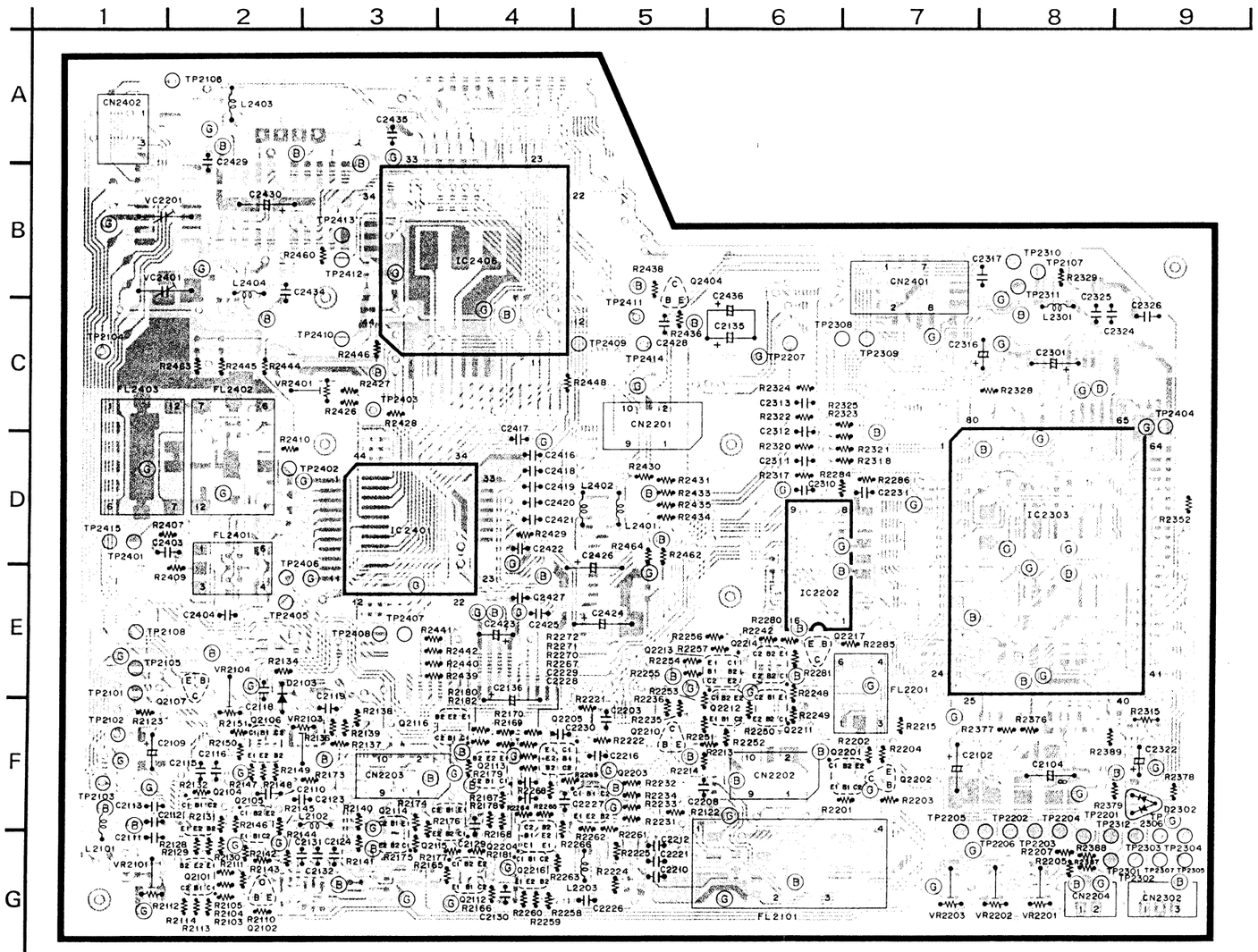
CIRCUIT BOARD DIAGRAM CAMERA MAIN C.B.A.

〈NOTICES〉 CAMERA MAIN C.B.A. consists of four layers.
(Soldering, Component, Ground and Power Supply patterns.)
1) Through—hole marks on each C.B.A. denote:
○ : Soldering side ↔ Component side
Ⓖ : Soldering side (Component side) ↔ Ground
Ⓑ : Soldering side (Component side) ↔ Power Supply

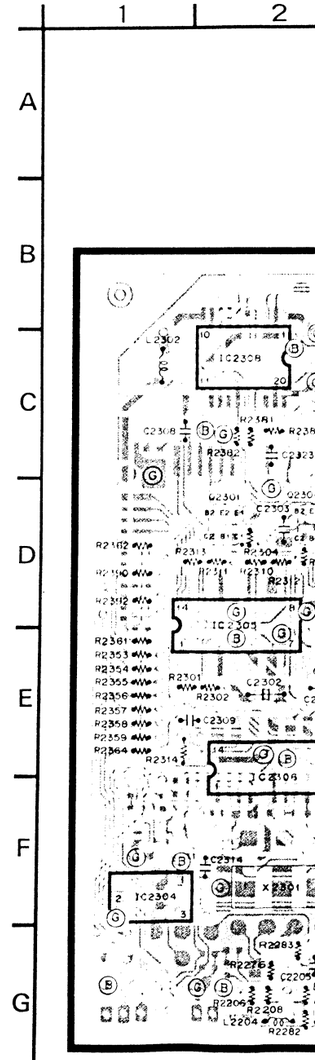
CAMERA MAIN C.B.A. (COMPONENT SIDE)

D2103	E-2
D2302	F-9
IC2202	D-6
IC2303	D-8
IC2401	D-3
IC2406	B-4
Q2101	G-1
Q2102	G-2
Q2103	G-3
Q2104	F-2
Q2105	F-2
Q2106	F-2
Q2107	E-1
Q2112	G-4
Q2113	F-4
Q2114	F-3
Q2115	G-3
Q2116	F-3
Q2201	F-6
Q2202	F-7
Q2203	F-5
Q2204	G-4
Q2205	F-4
Q2210	F-5
Q2211	F-6
Q2212	F-6
Q2213	E-5
Q2214	E-6
Q2216	G-4
Q2217	E-7
Q2404	B-5
VC2201	B-1
VC2401	B-1
VR2101	G-1
VR2104	E-2
VR2201	G-8
VR2202	G-8
VR2203	G-7
VR2401	C-2

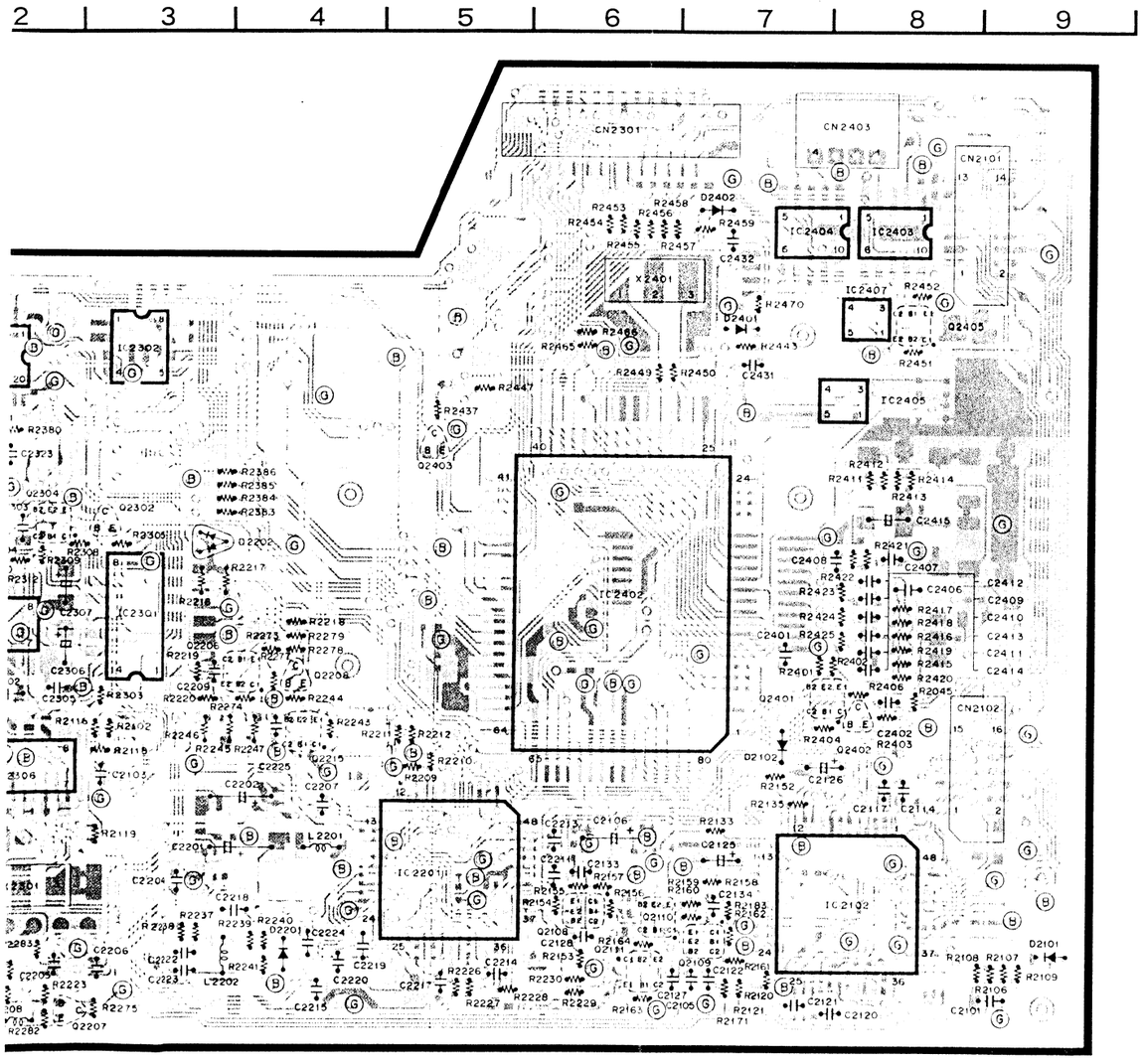


CAMERA MAIN C.B.A. (SOLDER

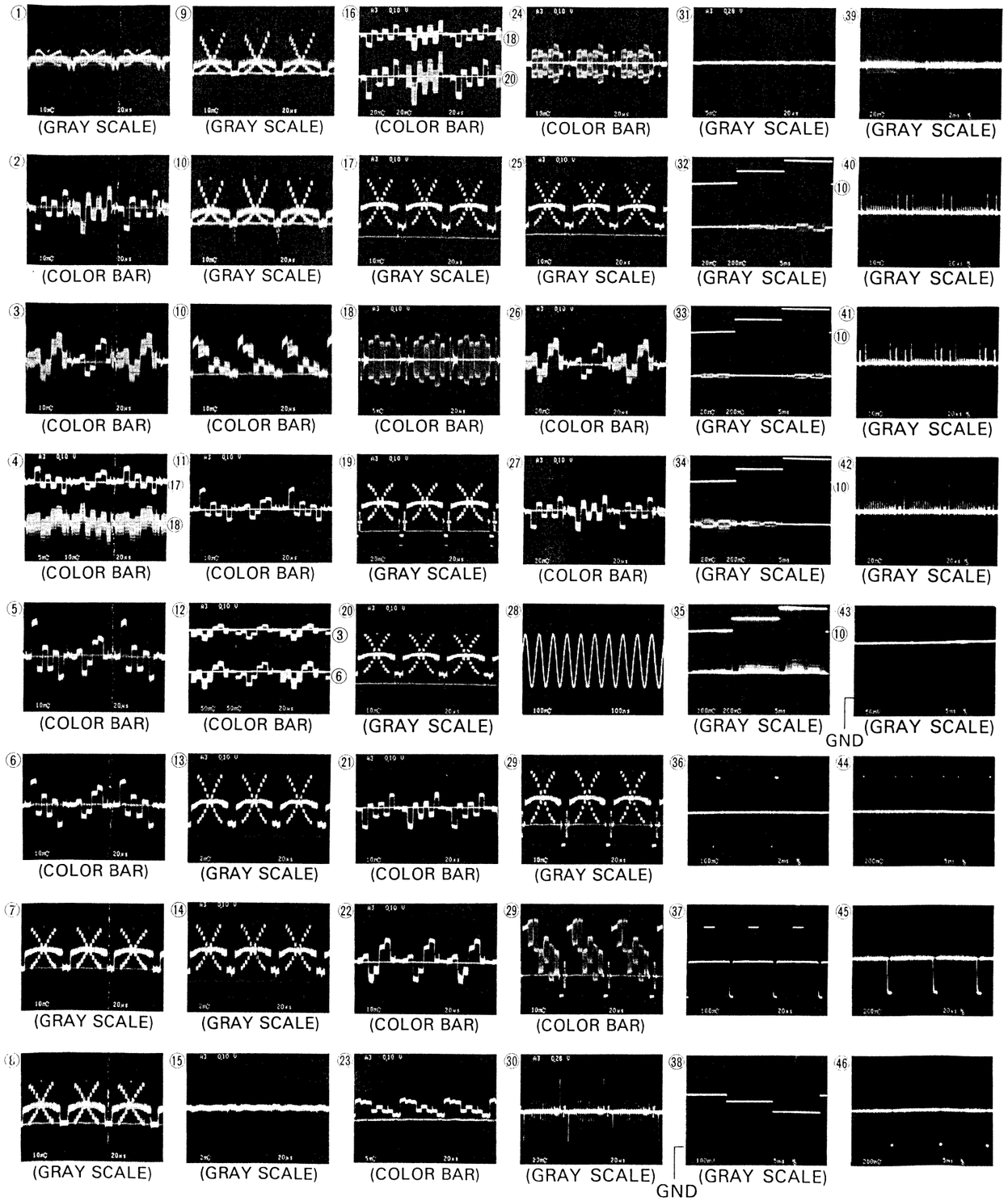
D2101	G-9
D2102	E-7
D2201	F-4
D2202	D-4
D2401	B-7
D2402	B-7
IC2102	F-8
IC2201	F-5
IC2301	D-3
IC2302	C-3
IC2304	F-1
IC2305	D-2
IC2306	E-2
IC2308	C-2
IC2402	D-6
IC2403	B-8
IC2404	B-7
IC2405	C-8
IC2407	B-8
Q2108	F-6
Q2109	G-7
Q2110	F-6
Q2111	G-6
Q2206	E-3
Q2207	G-2
Q2208	E-4
Q2215	E-4
Q2301	D-2
Q2302	D-3
Q2304	D-2
Q2401	E-7
Q2402	E-8
Q2403	C-5
Q2405	B-8



ERING SIDE)



SIGNAL WAVEFORMS



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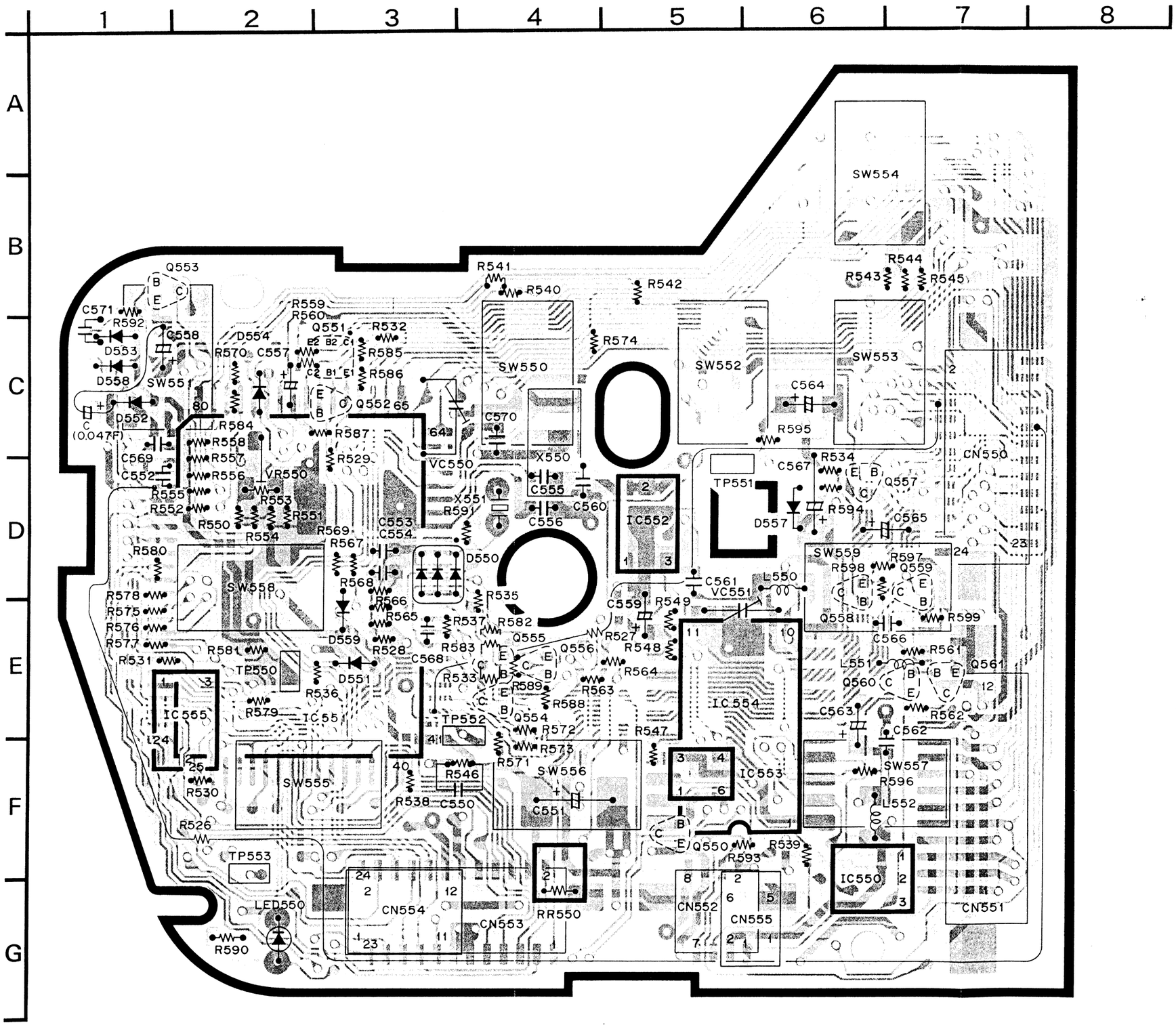
CIRCUIT DIAGRAM CAMERA-KEY C.B.A., SENSOR C.B.A.

CAMERA-KEY C.B.A.

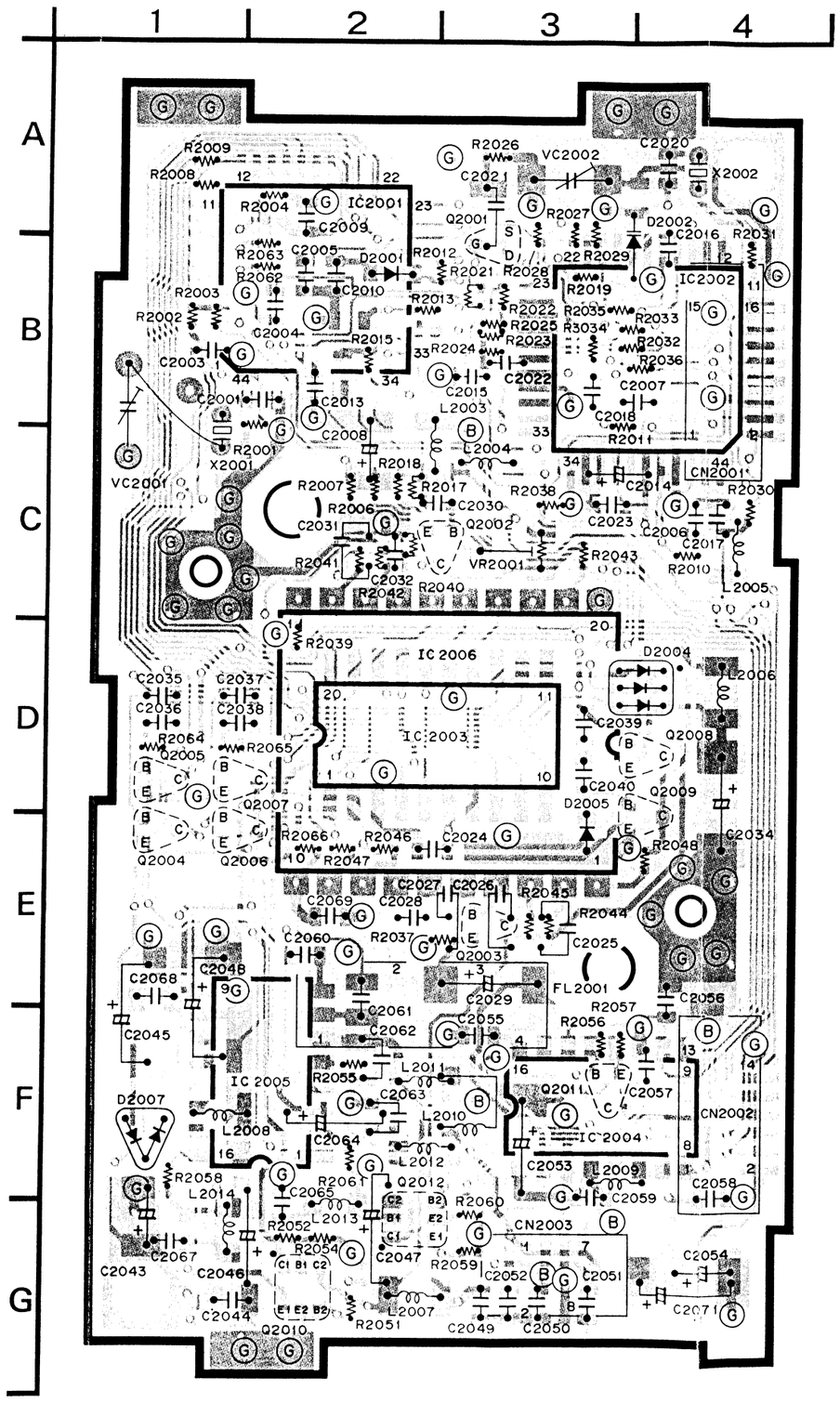
D550	D-4
D551	E-3
D552	C-1
D553	C-1
D554	C-2
D557	D-6
D558	C-1
D559	E-3
IC550	F-6
IC551	E-3
IC552	D-5
IC553	F-5
IC554	E-5
IC555	E-2
LED550	G-2
Q550	F-5
Q551	C-3
Q552	C-3
Q553	B-1
Q554	E-4
Q555	E-4
Q556	E-4
Q557	D-6
Q558	D-6
Q559	D-7
Q560	E-7
Q561	E-7
RR550	F-4



<NOTICES>
SENSOR C.B.A. consist
(Soldering, Component,
・Through—hole marks o
○ : Soldering side ↔ Co
Ⓖ : Soldering side (Com
Ⓑ : Soldering side (Com

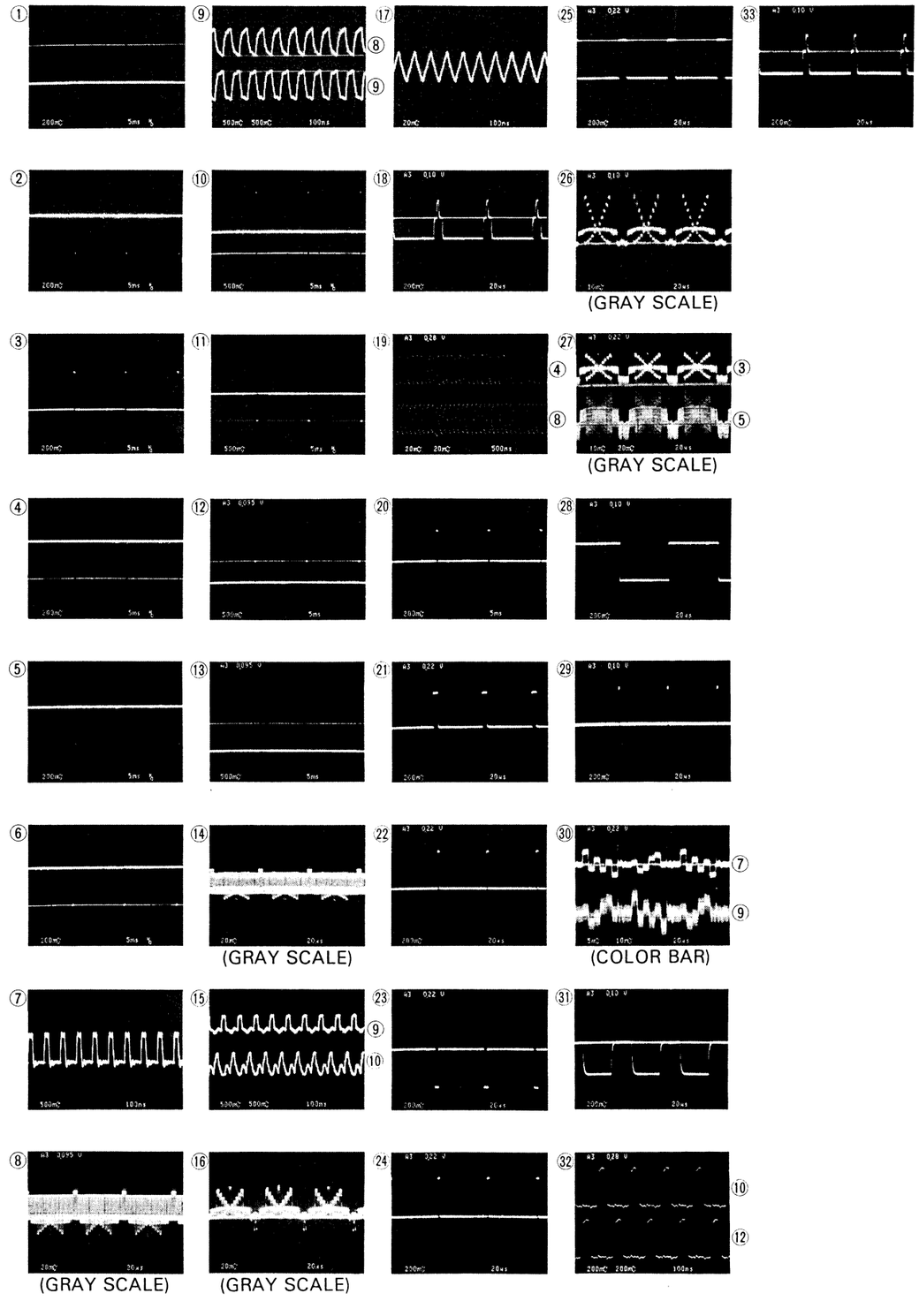
SENSOR C.B.A.

D2001	B-2
D2002	B-3
D2004	D-4
D2005	D-3
D2007	F-1
IC2001	A-2
IC2002	B-3
IC2003	D-2
IC2004	F-3
IC2005	F-2
IC2006	D-2
Q2001	A-3
Q2002	C-3
Q2003	E-3
Q2004	E-1
Q2005	D-1
Q2006	E-1
Q2007	D-2
Q2008	D-4
Q2009	D-4
Q2010	G-2
Q2011	F-3
Q2012	F-2



consist of four layers.
ponent, Power Supply and Ground patterns.)
marks on each C.B.A. denote :
e ↔ Component side
e (Component side) ↔ Ground
e (Component side) ↔ Power Supply

SIGNAL WAVEFORMS



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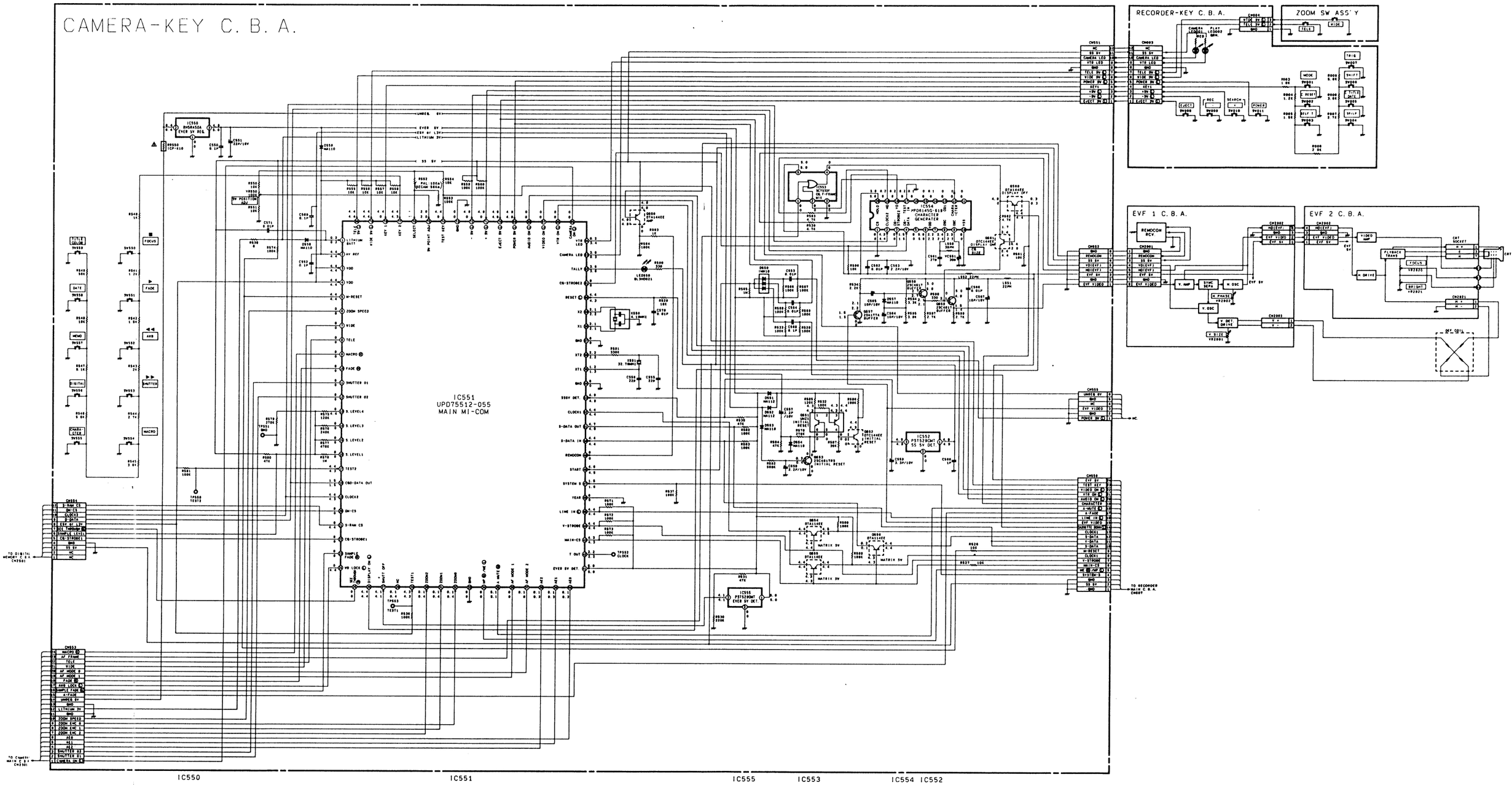
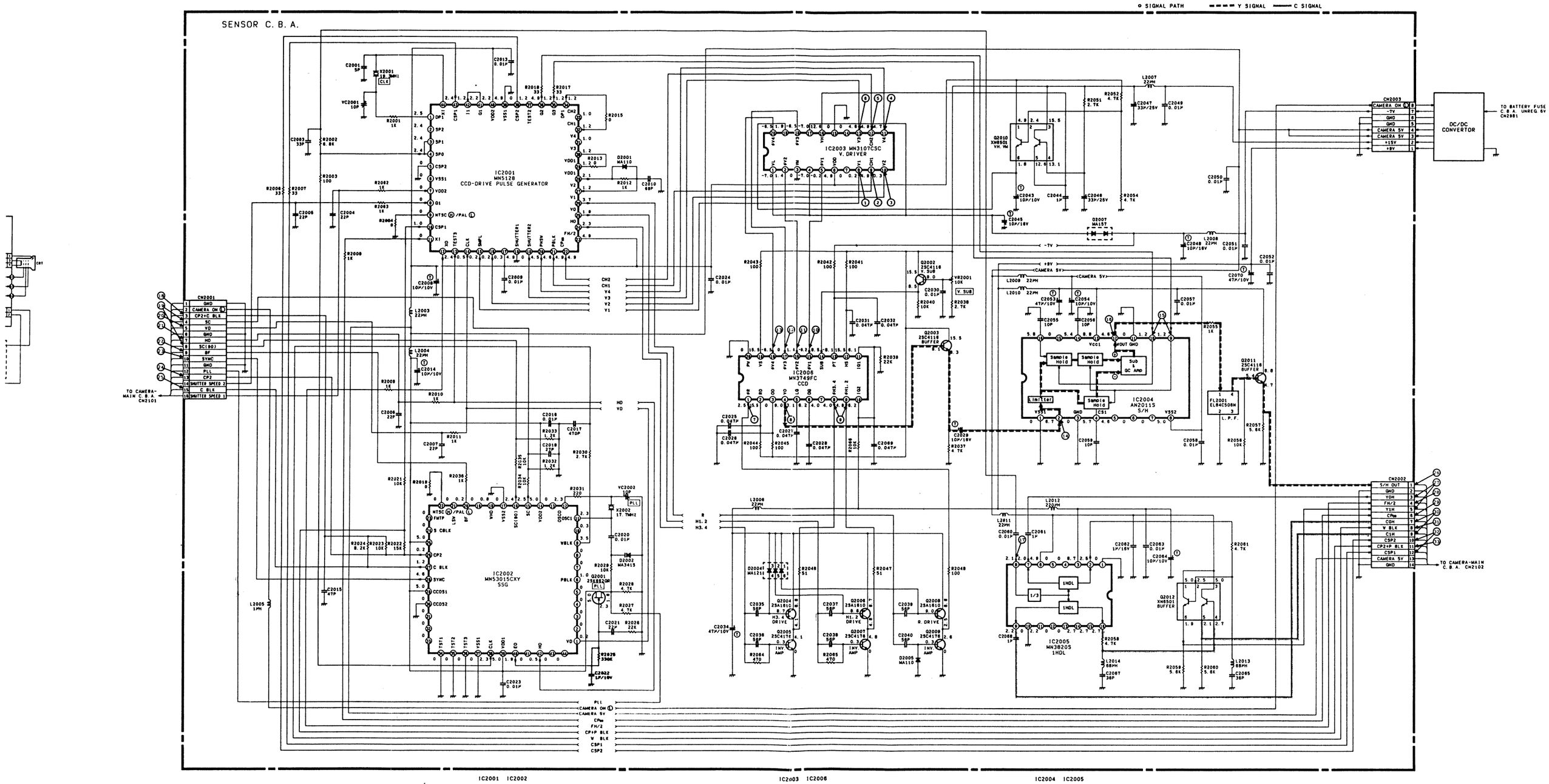
SCHEMATIC DIAGRAM CAMERA-KEY C.B.A. SENSOR C.B.A.



01 Dec. 1990



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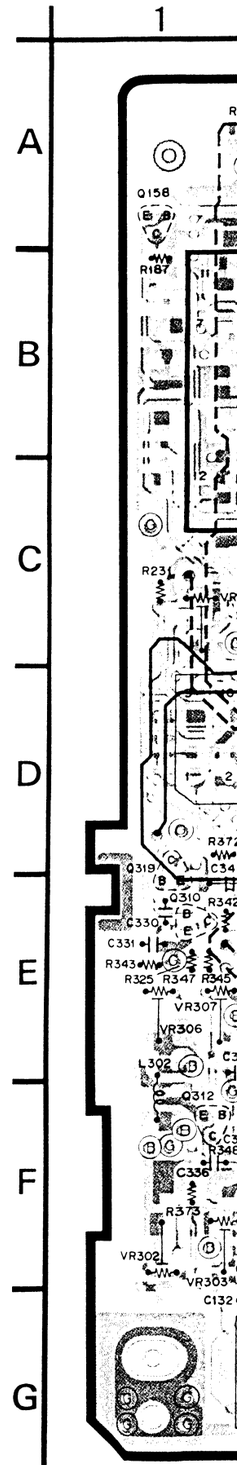
CIRCUIT BOARD DIAGRAM RECORDER MAIN C.B.A.

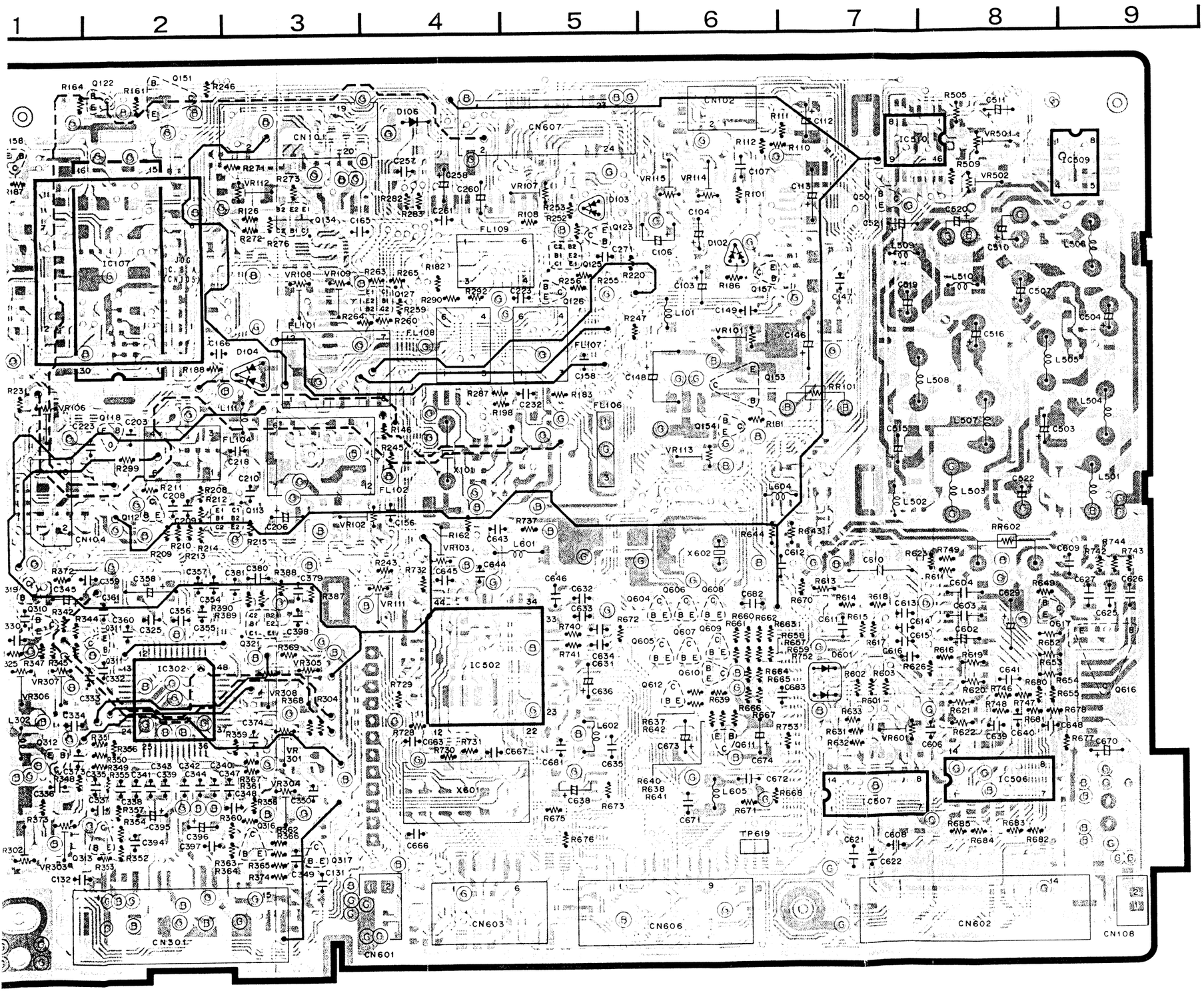
RECORDER MAIN C.B.A. (COMPONENT SIDE)

〈NOTICES〉 RECORDER MAIN C.B.A. consists of four layers.
(Soldering, Component, Ground and Power Supply patterns.)
1)Through—hole marks on each C.B.A. denote :
○ : Soldering side ↔ Component side
Ⓖ : Soldering side (Component side) ↔ Ground
Ⓑ : Soldering side (Component side) ↔ Power Supply
2)Blue lines denote signal patterns which connected in the Ground or Power Supply layer.
Blue (——) : Power Supply layer
Blue (- - -) : Ground layer

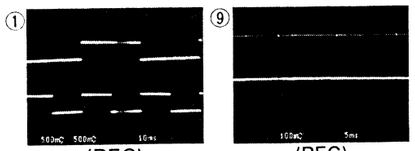
D102	B-6
D103	B-5
D104	C-3
D106	A-4
D601	E-7
IC107	B-2
IC302	E-2
IC502	E-4
IC506	F-8
IC507	F-7
IC509	A-9
IC510	A-7
Q112	D-2
Q113	D-3
Q118	C-2
Q122	A-2
Q123	B-5
Q125	B-5
Q126	B-5
Q127	B-4
Q134	B-3
Q151	A-2
Q153	C-6
Q154	C-6
Q157	B-6
Q158	A-1
Q310	E-1
Q311	E-2
Q312	F-1
Q313	F-2
Q316	F-3
Q317	F-3
Q319	E-1
Q321	E-3
Q501	B-7
Q604	E-6
Q605	E-6
Q606	E-6
Q607	E-6
Q608	E-6
Q609	E-6
Q610	E-6
Q611	F-6
Q612	E-6
Q616	E-9
Q617	E-8
VR101	C-6
VR102	D-3
VR103	D-4
VR106	C-1
VR107	B-5
VR108	B-3
VR109	B-3
VR111	E-4
VR112	B-3
VR113	D-6

VR114	B-6
VR115	B-6
VR301	F-3
VR302	F-1
VR303	F-1
VR304	F-3
VR305	E-3
VR306	E-1
VR307	E-1
VR308	E-3
VR501	A-8
VR502	B-8
VR601	F-7

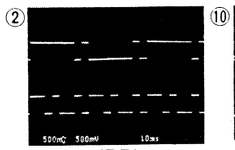


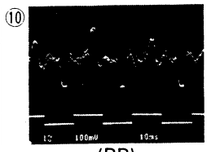


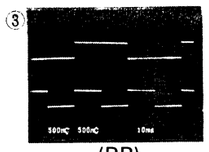
SIGNAL WAVEFORMS

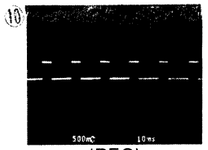

(REC)

(REC)


(PB)


(PB)


(PB)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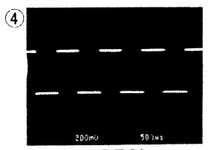
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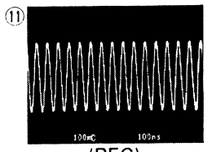
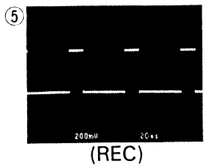
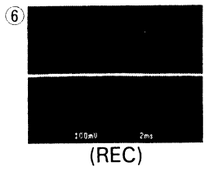

(REC)


(REC)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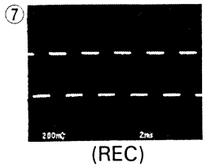
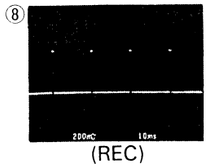

(REC)


(REC)

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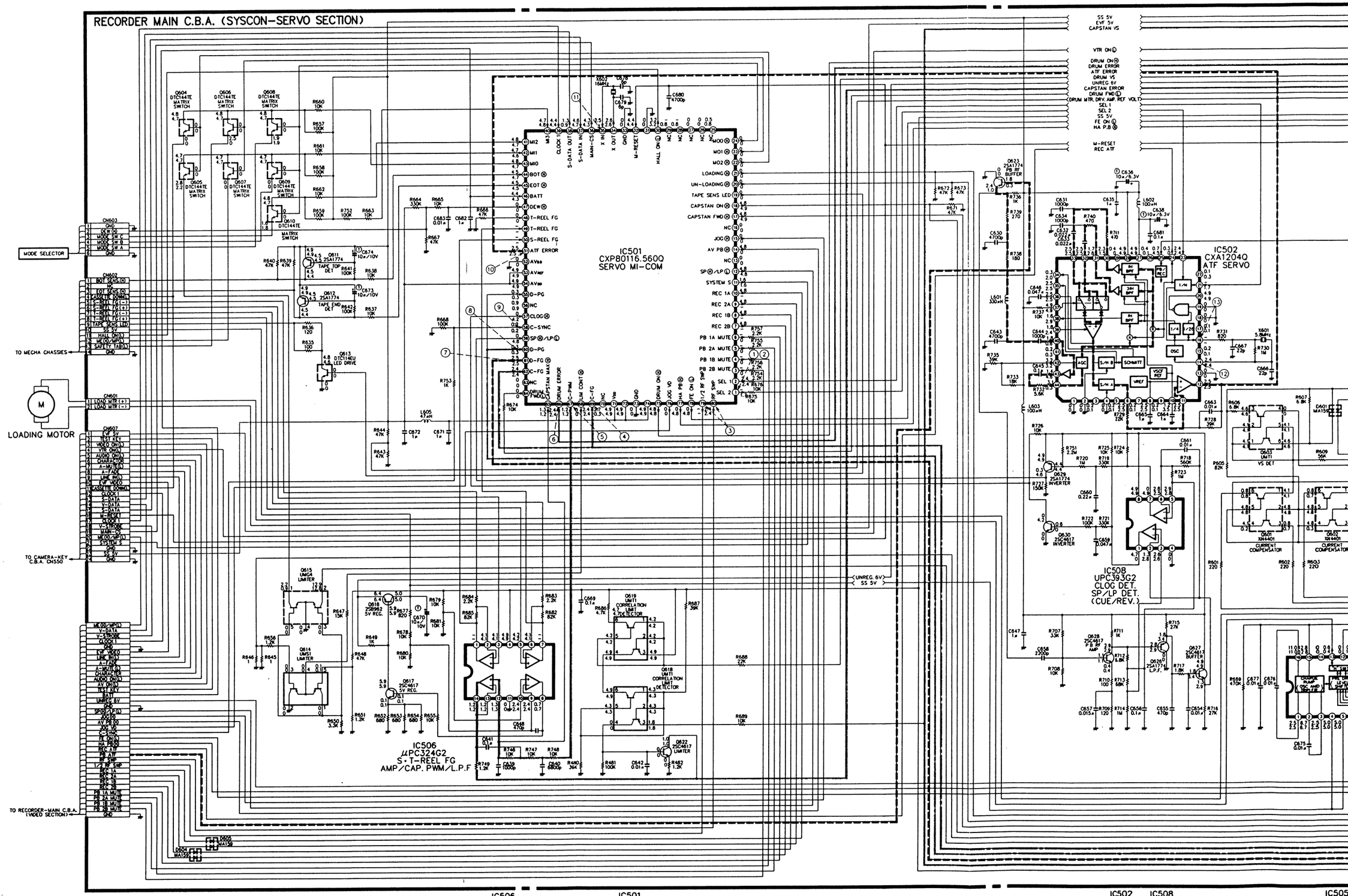
SCHEMATIC DIAGRAM RECORDER MAIN C.B.A. (SYSCON-SERVO SECTION)



01 Nov. 1990

DRUM PWM (ORANGE)
DRUM PG (ORANGE)
DRUM FG (ORANGE)

IC509
NJM311M
DRUM PWM
GENERATOR

IC510
MB3775PFV
SWITCHING
REGULATOR

IC504
CXA8006M
DRUM MOTOR
DRIVE. AMP

IC507
CXA1512M
WAVE SHAPPER

IC503
CXA1127AM
CAPSTAN
MOTOR
DRIVE

IC505
MPC1710BM
LOADING MOTOR
DRIVE

BATTERY FUSE C.B.A.

FROM BATTERY

FROM LITHIUM BATTERY

TO CAMERA-MAIN C.B.A. CN2402 & DC/DC CONVERTER

CAPSTAN MOTOR

DRUM MOTOR

IC505 IC504 IC507 IC510 IC509 IC503

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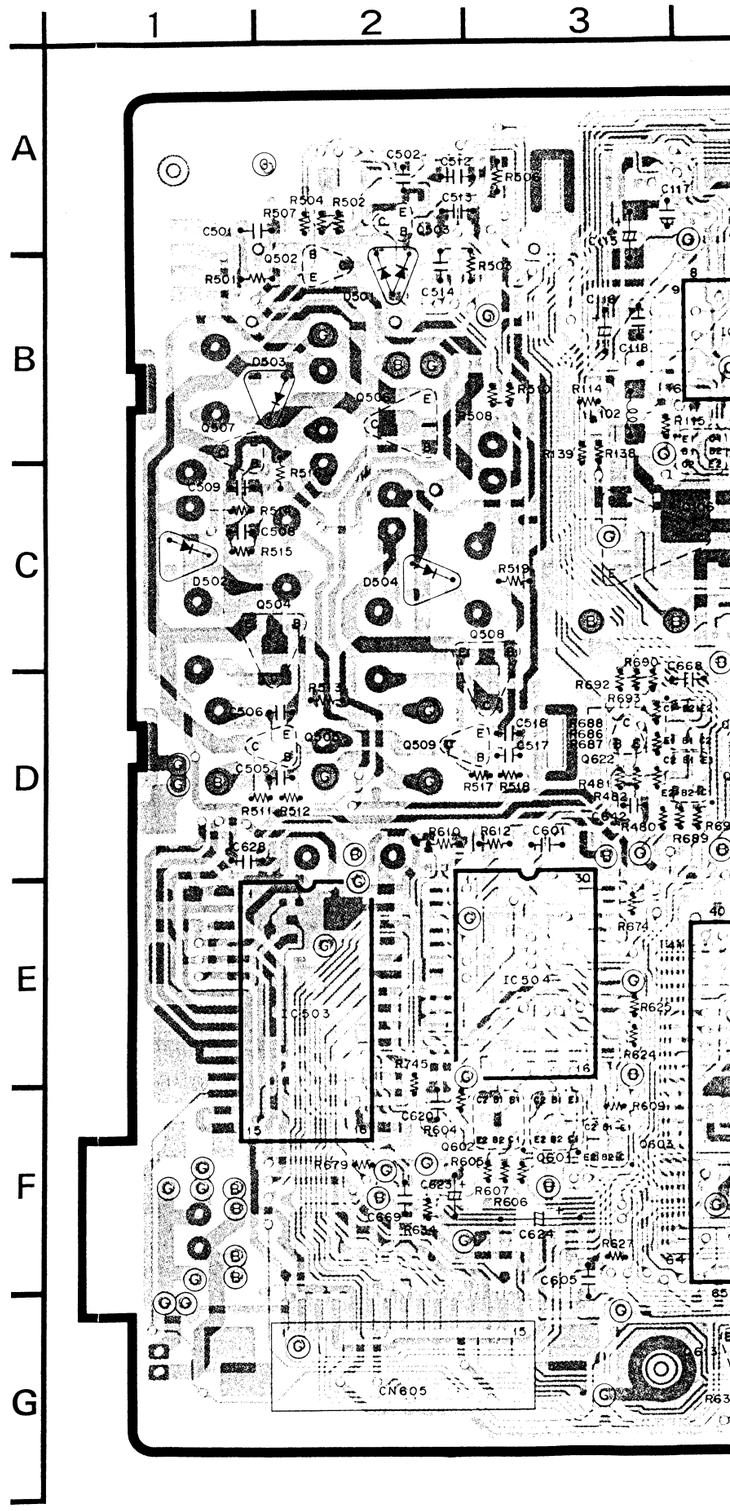
CIRCUIT BOARD DIAGRAM RECORDER MAIN C.B.A.

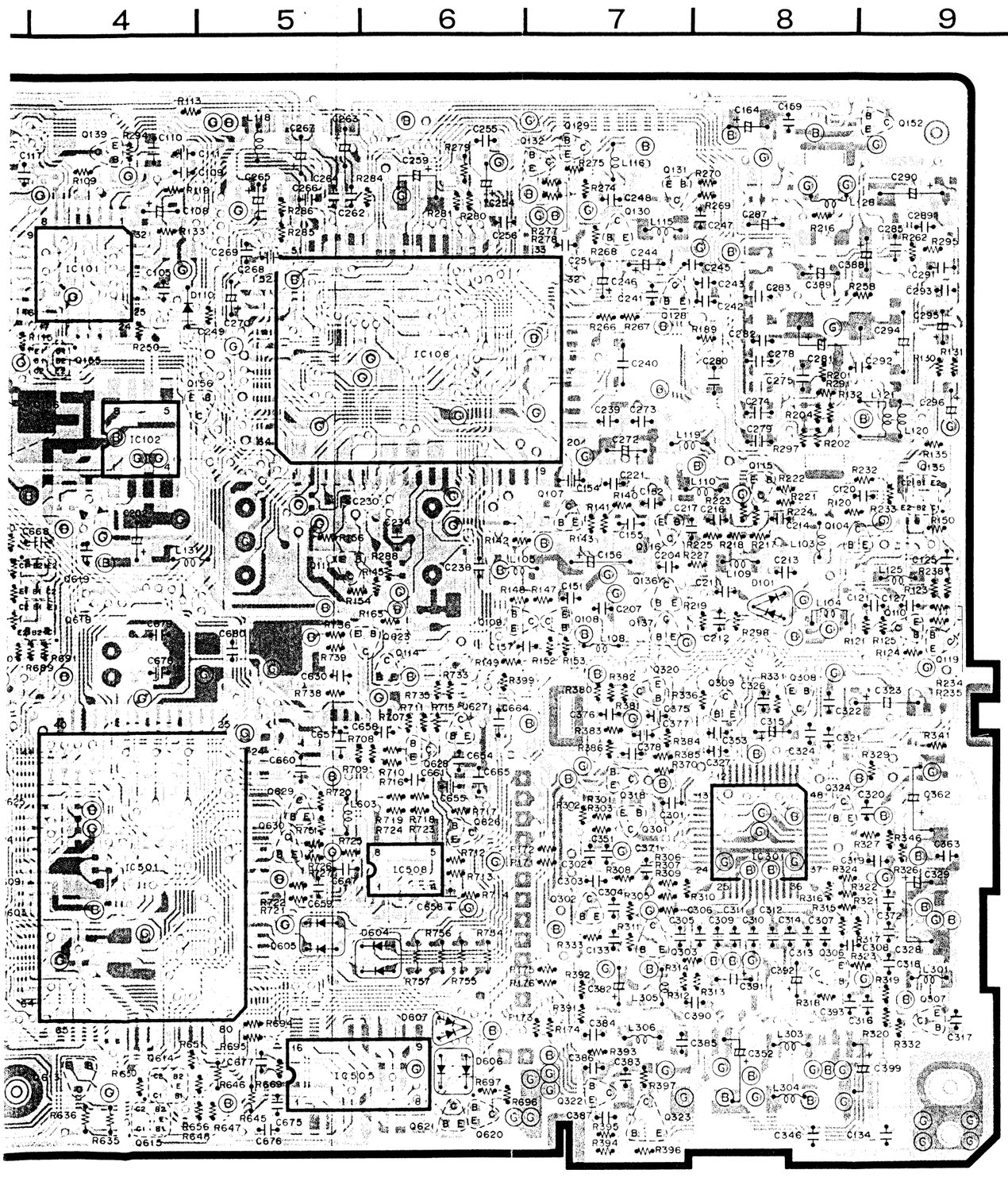
〈NOTICES〉 RECORDER MAIN C.B.A. consists of four layers.
(Soldering, Component, Ground and Power Supply patterns.)
•Through–hole marks on each C.B.A. denote.
○ : Soldering side ↔ Component side
Ⓖ : Soldering side (Component side) ↔ Ground
Ⓑ : Soldering side (Component side) ↔ Power Supply

RECORDER MAIN C.B.A. (SOLDERING SIDE)

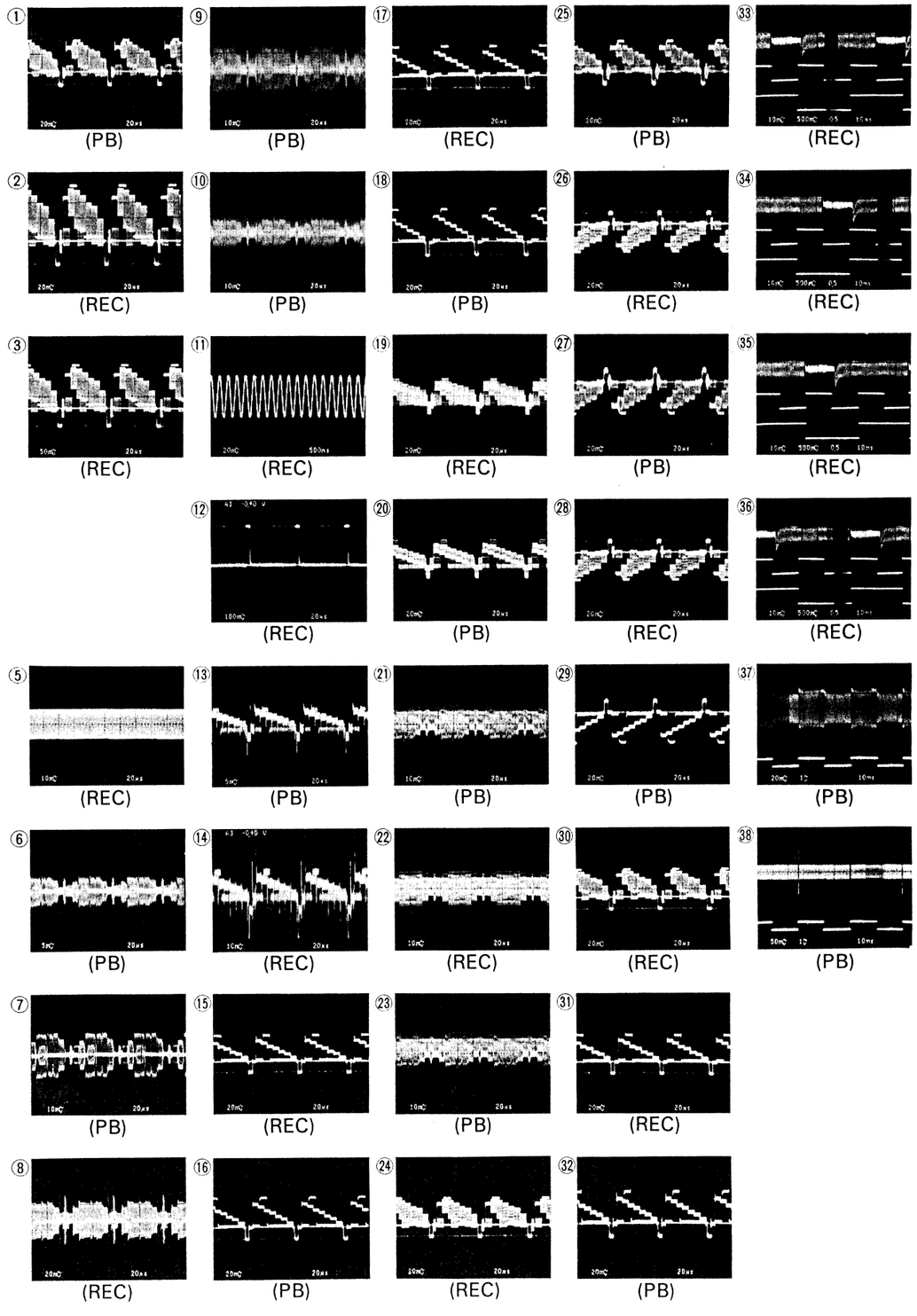
D101	D-8
D110	B-4
D501	B-2
D502	C-1
D503	B-2
D504	C-2
D604	F-6
D605	F-5
D606	G-6
D607	F-6
IC101	B-4
IC102	C-4
IC106	B-6
IC301	E-8
IC501	F-4
IC503	E-2
IC504	E-3
IC505	G-6
IC508	F-6
Q104	C-8
Q106	C-3
Q107	C-7
Q108	D-7
Q109	D-6
Q110	D-9
Q111	D-5
Q114	D-6
Q115	C-8
Q116	D-7
Q119	D-9
Q128	B-7
Q129	A-7
Q130	B-7
Q131	A-7
Q132	A-7
Q135	C-9
Q136	D-7
Q137	D-7
Q139	A-4
Q152	A-9
Q155	B-4
Q156	C-4
Q301	E-7
Q302	F-7
Q303	F-7
Q306	F-8
Q307	F-9
Q308	D-8
Q309	D-8
Q318	E-7
Q320	D-7
Q322	G-7
Q323	G-7
Q324	E-8
Q502	B-2
Q503	A-2
Q504	C-2

Q505	D-2
Q506	B-2
Q507	B-1
Q508	C-3
Q509	D-2
Q601	F-3
Q602	F-3
Q603	F-3
Q613	G-4
Q614	G-4
Q615	G-4
Q618	D-4
Q619	D-4
Q620	G-6
Q621	G-6
Q622	D-3
Q623	D-6
Q626	E-6
Q627	E-6
Q628	E-6
Q629	E-5
Q630	E-5





SIGNAL WAVEFORMS



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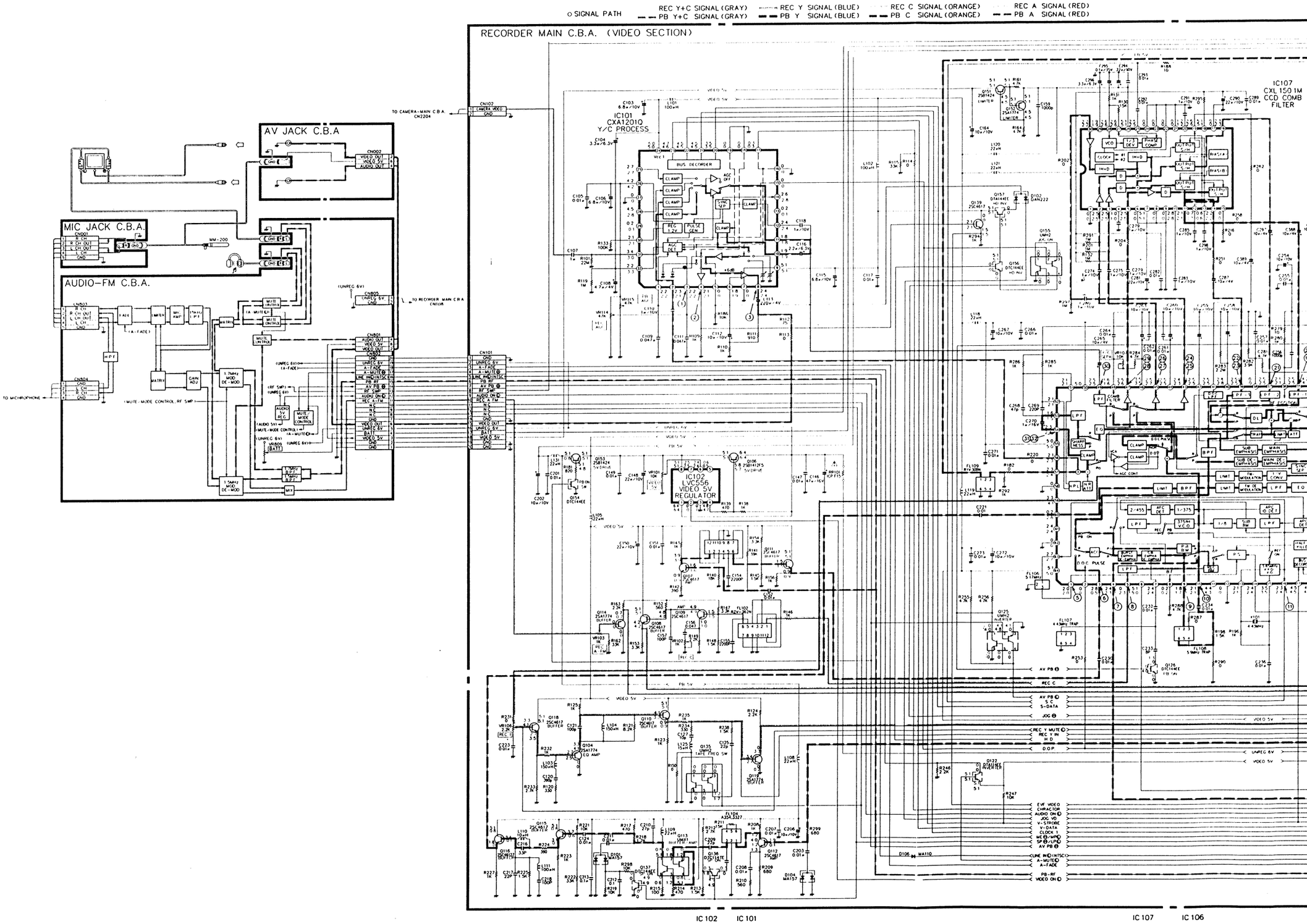
SCHEMATIC DIAGRAM RECORDER MAIN C.B.A. (VIDEO SECTION)



01 Dec. 1990

IC 302 IC 301

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Canon VIDEO SERVICE MANUAL REPORT

Technical Service Department, Canon Inc.

Report No. AD-505N・P・F-PAL 1/1

Date June 20, 1991

MC-FL

NTSC

PAL

F-PAL

Change of Service Parts

1. Change

The cam base (DY4-2848-000) was changed to prevent the TG1 from dropping off. The shape of the cam base is changed in such a way that even if the TGI has dropped from the track of the cam during the loading operation, it will return to the original track during the unloading operation.

2. Repair Information

Use this part for repairs when the TG1 has dropped off.

3. Parts Control Information

3-1 Deleted parts : N/A

3-2 Changed parts : DY4-2848-000 New parts only stocked.

3-3 New service parts : N/A

Canon VIDEO SERVICE MANUAL REPORT
Technical Service Department, Canon Inc.

Report No. AD-523N·P·F-PAL 1/1
Date Aug./Sept., 1991

NTSC
PAL
F-PAL

Canon MC-FL

1. Parts Deleted
2. Parts Control Information

1. Parts Deleted

1-1 Deletion

For parts availability, the following parts (TG-1 Arm Assembly) are deleted from the parts catalog.

	Deleted	New
1. TG-1 Arm Assembly	DY4-2879-000	TG-1 Arm Assembly
2. String Assembly	DY4-2776-000	DY4-2950-000
3. Joint Holder	DY4-2827-000	* See AD-429.
4. Coil Spring	DY4-2818-000	DY4-2951-000

1-2 Interchangeability : Impossible (See AD-429)

1-3 Repair Information

When repairing the TG-1 Arm section, replace it with the new TG-1 Arm Assembly (DY4-2951-000) as a set.

2. Parts Control Information

2-1 Deleted parts : DY4-2776-000
DY4-2818-000
DY4-2827-000
DY4-2879-000

2-2 Changed/New service parts : N/A

Canon VIDEO SERVICE MANUAL REPORT
Technical Service Department, Canon Inc.

Report No. AD-567N·P·F-PAL 1/1
Date January 20, 1992

NTSC
PAL
F-PAL

Canon MC FL

1. Parts Consolidation
2. Parts Control Information

1. Parts Consolidation

For parts availabilities, the following parts are consolidated.

(1) DY4-2950-000, DY4-2951-000 → DY4-3006-000

(2) DY4-2826-000, DY4-2840-000, DY4-2949-000, DY4-2948-000 → DY4-3005-000

(3) DY4-2816-000, DY4-2779-000, DY4-2943-000, DY4-2942-000 → DY4-3007-000

1-2 Classification : N/A

1-3 Repair information : N/A

2. Parts Control Information

2-1 Deleted parts : N/A

2-2 Changed parts :

The following parts will be deleted after the stock is depleted.

DY4-2779-000, DY4-2816-000, DY4-2819-000, DY4-2826-000,
DY4-2840-000, DY4-2841-000, DY4-2950-000, DY4-2951-000,
DY4-2949-000, DY4-2948-000, DY4-2943-000, DY4-2942-000

2-3 New service parts :

PART NO.	CLASS	Q'TY.	DESCRIPTION
DY4-3005-000	C	1	RATCHET(S) ASS'Y.
DY4-3006-000	C	1	ARM ASS'Y. TG1
DY4-3007-000	C	1	RATCHET(T) ASS'Y.

Canon VIDEO SERVICE MANUAL REPORT

Technical Service Department, Canon Inc.

Report No. AD-590N·P·F-PAL 1/1

Date May 20, 1992

Canon MC-FL

NTSC

PAL

F-PAL

1. Part No. Changed
2. Parts Control Information

1. Part No. Changed

1-1 Change

For parts availability, the following part No. has been deleted.

LS chassis

DY4-2885-000 · Deleted

1-2 Interchangeability : Not possible.

1-3 Repair information

When replacing the LS chassis of old type (DY4-2885-000) with the new type (DY4-2945-000), replace the guide rail (old type: DY4-2845-000) with a new type (DY4-2952-000) as a set, because they have no interchangeabilities. (See AD-429)

2. Parts Control Information

2-1 Deleted part : DY4-2885-000

2-2 Changed/New service parts : N/A

Canon VIDEO SERVICE MANUAL REPORT
C
Technical Service Department, Canon Inc

Report No. AD 602N·P·F
1/1
Date July 20, 1992

NTSC
PAL
F-PAL

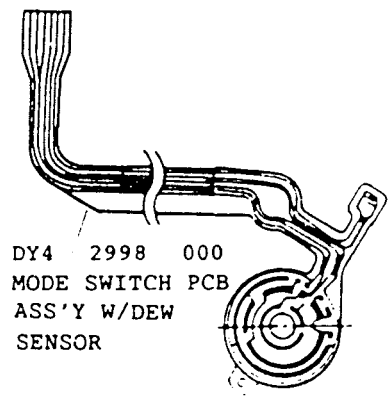
Canon MC-FL

1. Part Added (Mode SW P.C.B. Assembly)
2. Parts Control Information

1. Part Added (Mode SW P.C.B. Assembly)

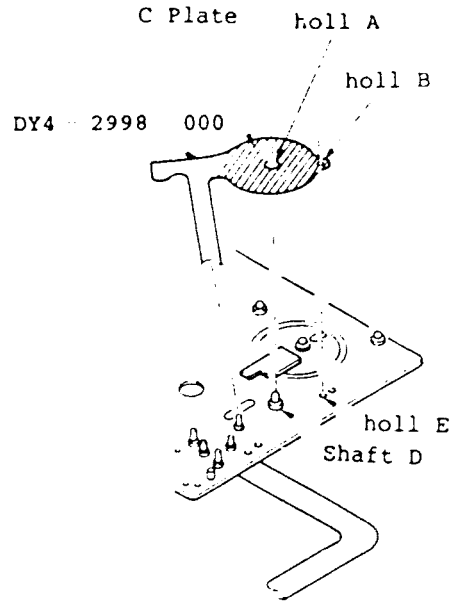
1 1 Addition

For market request, the Mode SW P.C.B. Assembly (Dew Sensor attached) is established as a service part.



1 - 2 Repair information

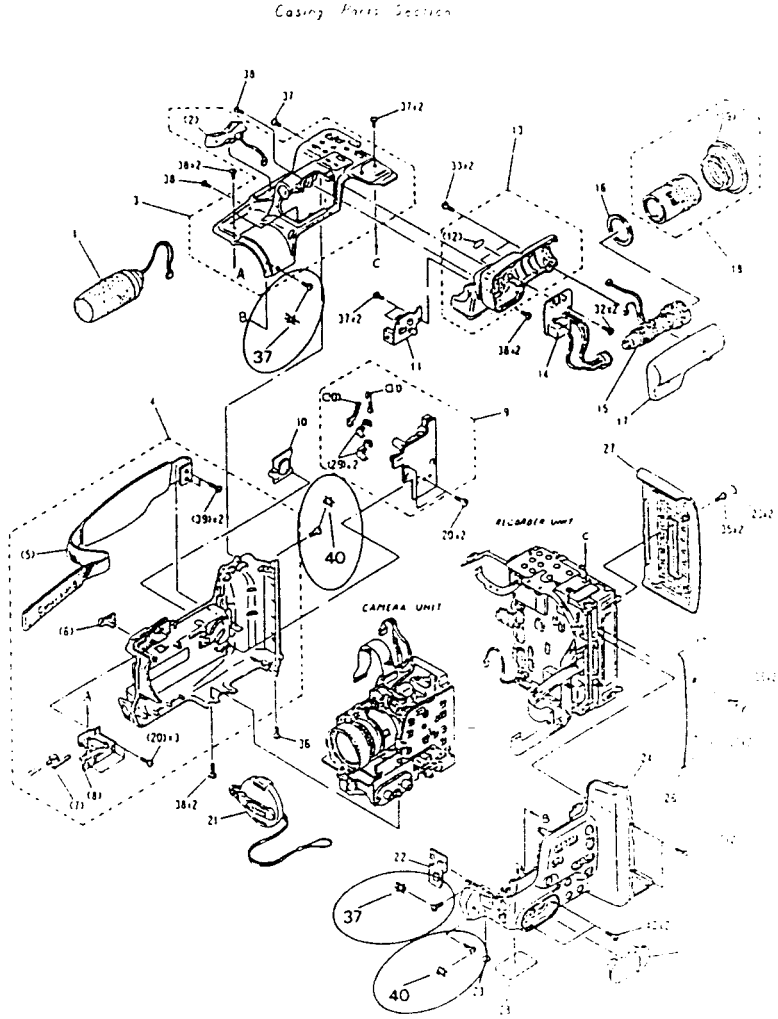
Before attaching the P.C.B. Assembly on the chassis, align the hole A of P.C.B. Assembly with the chassis shaft D and the hole B with the hole E of chassis.
As shown in the right figure.
Apply the conductive grease (DY9 - 3022 - 000) on the position with slanted line.



2. Parts Control Information

2 - 3 New service part

PART No.	CLASS	Q'ty.	Description
DY4 - 2998 - 000	C	1	MODE SWITCH PCB ASS'Y. W/DEW SENSOR



PIII-1 Parts Catalog

2-2 Repair Information

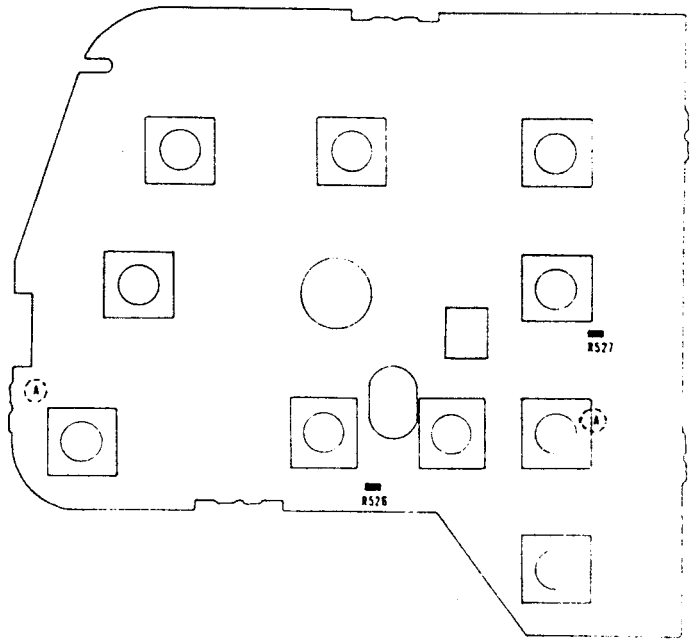
When replacing, use a new screw.

3. Pattern of Camera-Key C.B.A. Change

3-1 Change

The R526 and 527 (lead resistor) are changed to the chip type resistors. As in the figure on the next page, just the lands are added on the pattern. (Others are not changed)

Also, the pattern cut of A part (rear side of C.B.A., pin 5 of IC551 and pin 6 of CN550)has been deleted.



Locations of R526 and 527 (Camera-Key C.B.A.)

3-2 Classification No. : Not changed.

4. Parts Control Information

4-1 Deleted part : DA1-4249-000

4-2 Changed parts : XA9-9200-409 Q'ty. changed from 10 to 12.
XA4-9200-609 Q'ty. changed from 6 to 8.
XA9-0491-000 Q'ty. changed from 4 to 2.

4-3 New service parts : N/A

Canon © VIDEO SERVICE MANUAL REPORT
Technical Service Department, Canon Inc.

Report No. AD-474N·P
F-PAL 1/2

Date March 20, 1991

NTSC
PAL
F-PAL

Canon E08A·E/A10E·F

1. Part No. Correction (IC2302)
2. Circuit Diagram Corrections
3. Readjustment of AF Clock
4. Parts Control Information

1. Part No. Correction

1-1 Correction

The part No. of IC2302(E^2PROM) has been corrected as follows.

WA3-5392-000 → Y22-2583-000

1-2 Repair information

The WA3-5392-000 cannot be used for the E08 series although it has the same model name as the Y22-2583-000. (The internal data are different each other.)

2. Circuit Diagram Corrections

2-1 Corrections

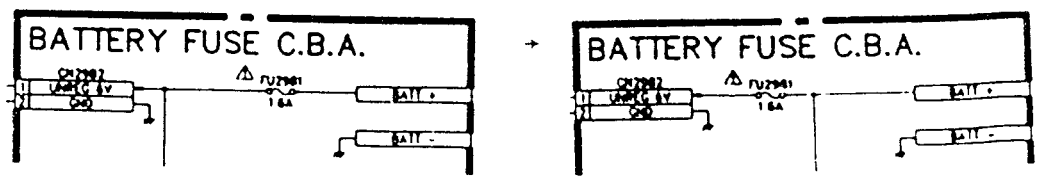
1) P.IV-11 Lower left of SYSCON-SERVO C.B.A.

The output from the Q616 has been changed from the SS 5V to the MOTOR 5V.

2) P.IV-11 BATTERY FUSE C.B.A.

The position of FU2981 has been corrected as follows.

Error → Corrected



3. Readjustment of AF Clock

3-1 Readjustment

Due to the maladjustment of AF clock in our plant, the following two symptoms have been occurred by aging.

Symptoms :

1) No AF function, No zoom motor operation, No indication of AF frame (Clock oscillation stopped)

2) When the AF frame indication appears on the left corner of screen during the automatic AF tracking operation, the wrong pulse appears in the H SYNC signal. (H period is extended excessively)

To prevent or repair the above symptoms, readjust the clock operation.(See the P.Ⅱ-18, 5-1-1)

* For the symptom 1), before adjusting, turn the VC2401 first, then perform the adjustment.

4. Parts Control Information

4-1 Deleted parts : N/A

4-2 Changed part : WA3-5392-000 Deleted from the parts catalog.

4-3 New service part :

PART NO.	CLASS	Q'TY.	DESCRIPTION
Y22-2583-000	B	1	IC S2917IF01

Canon © VIDEO SERVICE MANUAL REPORT
Technical Service Department, Canon Inc.

Report No. AD-485N·P
F-PAL 1/5

Date April 20, 1991

Canon E08A/A10E·F

NTSC
PAL
F-PAL

1. Remedy for Latch-Up by Malfunction of IC551
2. Parts Catalog Corrections
3. Parts Control Information

1. Remedy for Latch-Up by Malfunction of IC551

1-1 Symptoms and Tentative Recovery Procedure

* Note : The following symptoms occur except the products with the classification No. listed below.

. E08A : From 04

. A10E·F : From 02.

According to the timing difference of battery's disconnection (shortly after the power source is connected), the following symptoms may occur.

. Symptoms :
- . Not power on (Not operates)
- . Not power on (EVF indication lights up and won't turn out)
- . Not operates after power on
- . No character indication in EVF
- . Other faulty operations by malfunction of IC551

. Tentative Recovery Procedures :

1. Remove the battery source and the lithium battery.
2. Mount the battery source again, and turn on the power switch.

   (Then the microcomputer is reset.)

1-2 Permanent Remedy for Unremedied* Products

* Unremedied products : Classification No. 01-03(E08A)
01 (A10E· F)

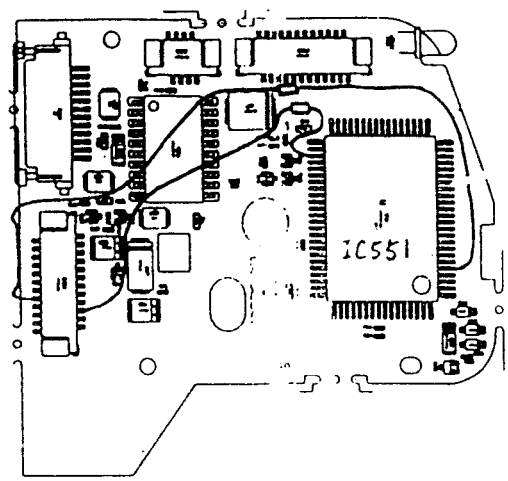
The following remedies are required for the unremedied products.

1) Replacement of IC551

* Note : If the lead wire is not used between pins 5 and 43, skip the procedures 1 and 4.

Procedures :

1. Remove the lead wire between the pins 5 and 43 once.
   Then, clean the bond adhesive applied IC pins by using an ethanal or equivalent.
2. While taking care of C550, R559, R560 and R591, Remove the IC551.
3. Install the new IC551 with ROM No. 061 or 064.
4. Solder the lead wire between pins 5 and 43 again.



2. Addition of differential circuit

Procedures :

1. Remove the C559.
2. Install the resistor of 100kΩ (VR5-2290-104) between the pin 3 of IC550 and that of IC552.
3. Cut the pattern at Ⓒ in the figure.
4. Install the capacitor of 0.047uF(Y22-2582-000) at the pattern cut position. (Ⓒ)

   Note : Cover the resistor with a thermo-contractive tube or equivalent.

3. Parts Control Information

3-1 Deleted parts : N/A

3-2 Changed parts :

DG1-1460-000	Deleted from Parts Catalog.
DG1-1488-000	Added to Parts Catalog.
DH4-0309-000	New only stocked.

3-3 New service parts :

PART NO.	CLASS	Q'TY.	DESCRIPTION
Y22-2582-000	C	1	CERAMIC CAPACITOR 0.047μF
Y21-3316-000	C	1	RESISTOR, 100K ohm

Canon VIDEO SERVICE MANUAL REPORT
Technical Service Department, Canon Inc.

Report No. AD-495P·F-PAL
1/2

Date May 20, 1991

Canon A10E/F

PAL

F-PAL

1. Classification No. (00 → 01)
2. Classification No. (01 → 02)
3. Classification No. (02 → 03)
4. Classification No. (03 → 04)

1. Classification No. (00 → 01)

1-1 Change

The GEAR ARM ASSEMBLY (DY4-2778-000) of MC-FL (recorder mechanism) is modified to reduce the misoperation which is caused by the faulty of clinched section.*

* Remarks : By this faulty, the gear may sometimes fail to work and the tape cannot be wound by the reel.

1-2 Classification : Changed from 01.

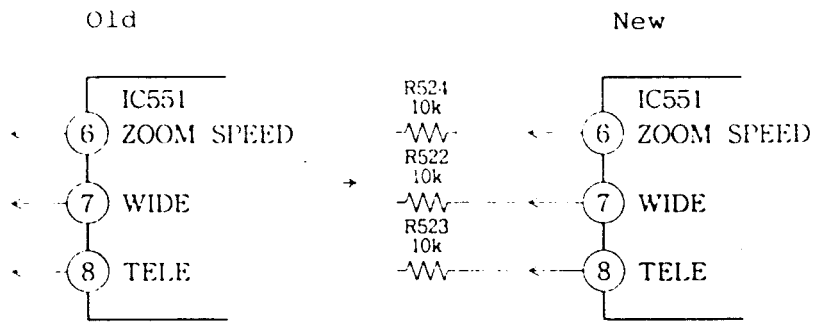
1-3 Repair information

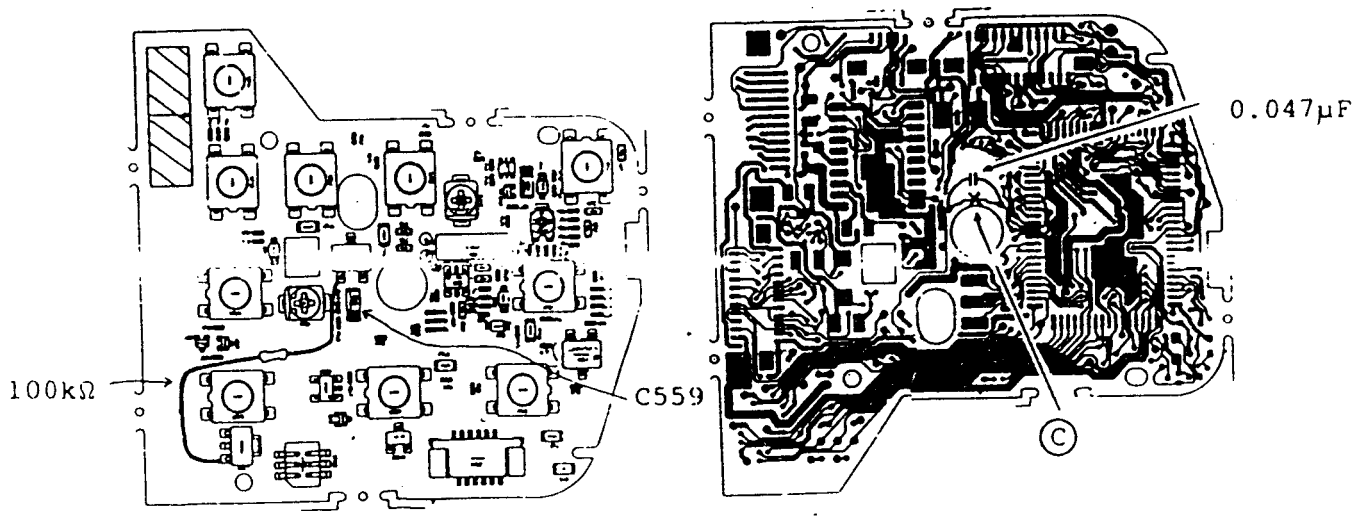
To repair the above symptom, replace the GEAR ARM ASSEMBLY.

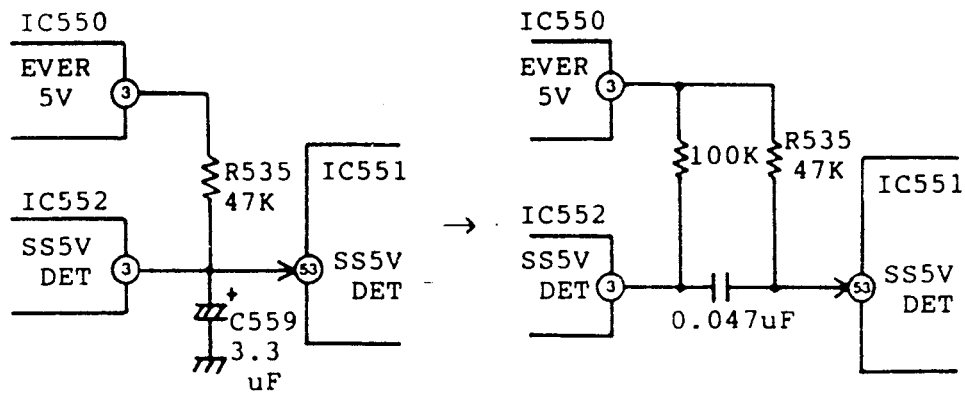
2. Classification No. (01 → 02)

2-1 Change

To reduce the current consumption of microcomputer, three resistors are added to the pins 6, 7 and 8 of IC551 in series as follows.





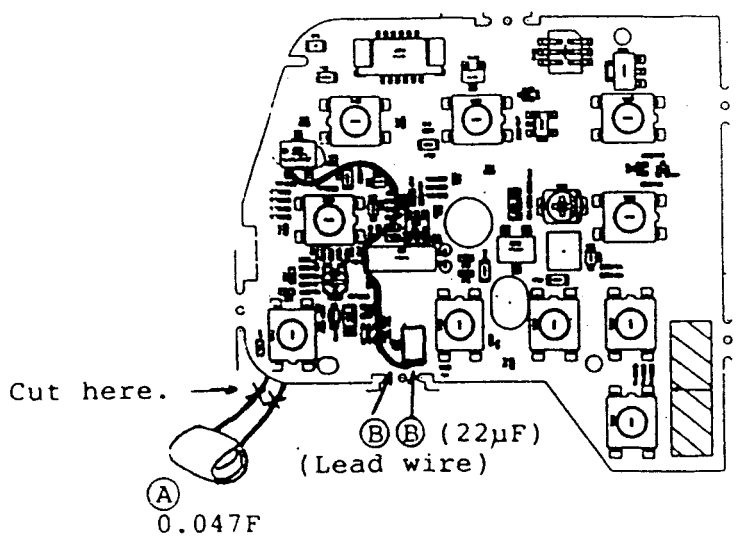


3) Removal of capacitors 22μF and 0.047F

Procedures : 1. Cut the wire of gold capacitor of 0.047F (Ⓐ), and remove it.

Note : If the solder or bond adhesive remains, remove it.)

2. Remove the capacitor of 22μF and its lead wire (Ⓑ).



4) Switching point adjustment

After the above remedies are performed, confirm the switching point adjustment.

2. Parts Catalog Corrections

2-1 Corrections

E08A P.Ⅳ-24

DY2-1326-000	LEFT COVER ASS'Y.	E08A ONLY	Error
		↓	
		E08 ONLY	Corrected

A10E·F

P. Ⅲ-2 No. 17 RIGHT COVER EVF E-TYPE

DY2-4246-000	→	DA1-4246-000
Error		Corrected

P. Ⅲ-2 No. 17 RIGHT COVER EVF F-TYPE

DY2-4247-000	→	DA1-1488-000
Error		Corrected

P. Ⅲ-23 UPPER COVER ASS'Y. F-TYPE

DG1-1460-000	→	DG1-1488-000
Error		Corrected

2-2 Classification : Changed from 02.*

* Remarks : The above change has been performed at the same timing of the remdy informed in the AD-485.

3. Classification No. (02 → 03)

3-1 Change

Three resistors mentioned in 2 (R522, R523 and R524), and C573 and R525 (See AD-485) of differential circuit are absorbed into pattern.(added by automation)

3-2 Classification : Changed from 03.

4. Classification No. (03 → 04)

4-1 Change

For the safety specifications of BEAB and UL, the R2981 of FUSE BATTERY C.B.A. (Lithium battery line) is changed from 100Ω to 1KΩ.

4-2 Classification : Changed from 04.

4-3 Repair information :

When repairing the products of BEAB area before the classification No. 03, replace the R2981 with that of 1KΩ.

R2981 1KΩ (VR5-2770-102)

5. Classification No.

5-1 Deleted /New service parts : N/A

5-2 Changed part : VR5-2770-102 Added to the parts catalog.

Canon VIDEO SERVICE MANUAL REPORT

Technical Service Department, Canon Inc.

Report No. AD-504N•P•F-PAL 1/1

Date June 20, 1991

Canon E08A, A10E, F

NTSC

PAL

F-PAL

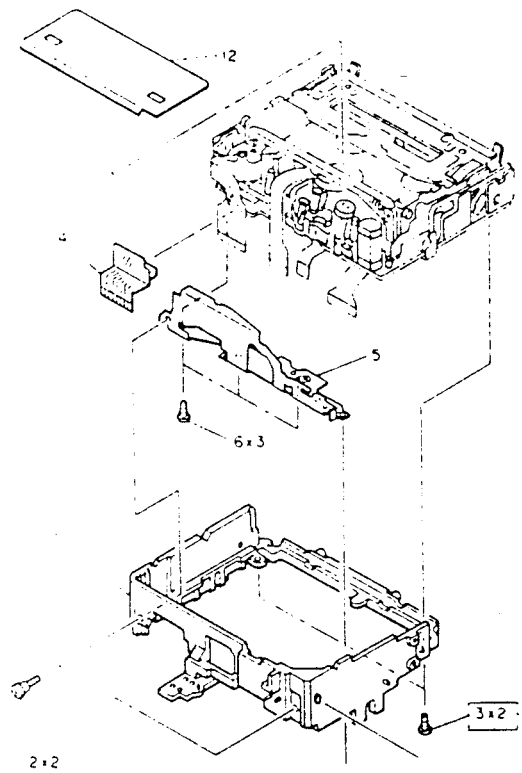
1. Remedy for Drop-off of Recorder Holder's Stopper Screws

1. Remedy for Drop-off of Recorder Holder's Stopper Screws

1-1 Remedy

After a period of time, some recorder holder stopper screws (3 × 2) may drop. A dropped screw may short-circuit the power line and blow the fuse. When repairing a product mentioned in the title is brought, check the screw, and take measures to prevent the screw from dropping off by securing the screw lock, etc.

Recorder Unit Section



Canon VIDEO SERVICE MANUAL REPORT
Technical Service Department, Canon Inc.

Report No. AD-456P F-PAL
1/3
Date December 20, 1990

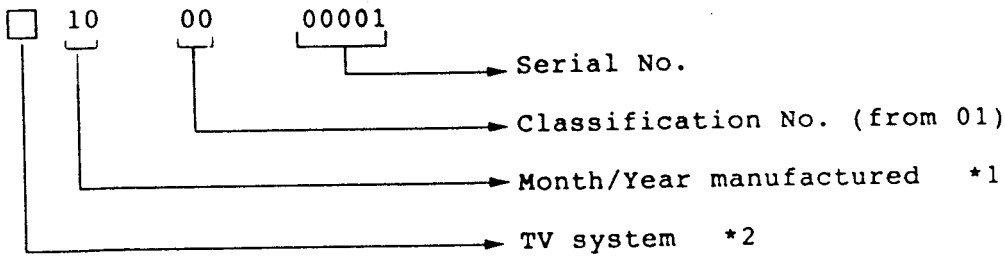
PAL
F-PAL

Canon A10E/F

1. Classification No.
2. Screw Change
3. Pattern of Camera-Key C.B.A. Change
4. Parts Control Information

1. Classification No.

The classification No. of A10E/F are established as follows.



*1

Year \ Month	1	2	3	4	5	6	7	8	9	10	11	12
'90									09	10	11	12
'91	21	22	23	24	..	..						

*2 3.....PAL
4.....F − PAL

2. Screw Change

2-1 Change

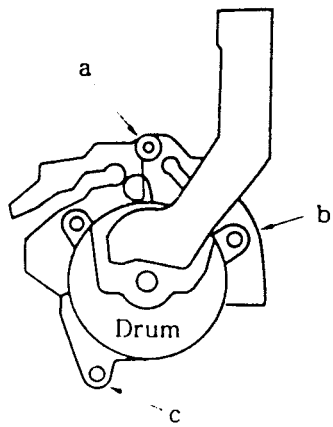
The following screws have been changed.

No.	Part No.		No.	Part No.
34	XA9-0491-000	→	37	XA4-9200-409
41	DA1-4249-000	→	40	XA4-9200-609
	Old (TIGHT)			New (SELF TAP)

11-3 New service parts

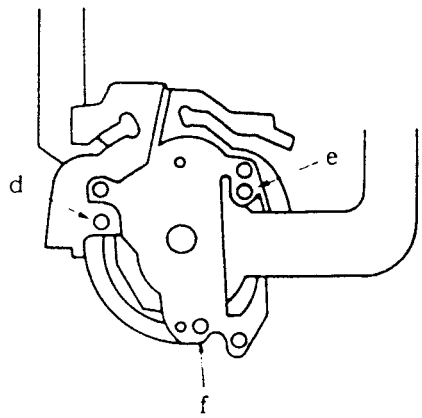
PART No.	CLASS	Q'TY.	DESCRIPTION
DY4－2942－000	C	1	RACHET(T)
DY4－2943－000	C	1	SPRING
DY4－2944－000	F	1	SCREW
DY4－2945－000	C	1	LS CHASSIS
DY4－2946－000	C	1	ARM (S)
DY4－2947－000	C	1	SPRING,COIL
DY4－2948－000	C	1	RACHET(S)
DY4－2949－000	C	1	SPRING.COIL
DY4－2950－000	C	1	ARM ASS'Y,TG1
DY4－2951－000	C	1	SPRING,COIL
DY4－2952－000	C	1	GUIDE RAIL(S)
DY4－2953－000	C	1	BASE,DRUM(A)
DY4－2954－000	F	1	SCREW
DY4－2955－000	F	1	SCREW

• Screws for Mechanical Chassis and Drum Base



	Drum Base + Guide Rail Base (2)	Drum Base (A)	Drum Base (M)
a	M1. 4×4. 5 DY4－2836－000	M1. 4×2. 5 DY4－2834－000	M1. 4×2. 5 DY4－2834－000
b	M1. 4×4. 5 DY4－2836－000	M1. 4×2. 5 DY4－2834－000	M1. 4×2. 5 DY4－2834－000
c	M1. 4×2. 5 DY4－2834－000	M1. 4×3. 5 DY4－2954－000	M1. 4×2. 5 DY4－2834－000

• Screws for Drum and Drum Base



	Drum Base + Guide Rail Base (2)	Drum Base (A)	Drum Base (M)
d	M1. 4×4. 5 DY4－2836－000	M1. 4×4. 5 DY4－2836－000	M1. 4×4. 5 DY4－2836－000
e	M1. 4×4. 5 DY4－2836－000	M1. 4×4. 5 DY4－2836－000	M1. 4×4. 5 DY4－2836－000
f	M1. 4×4. 5 DY4－2836－000	*1 Coil spring attached DY4－2955－000	M1. 4×4. 5 DY4－2836－000

*1 This screw has a convex about 0.7 mm (max.). To avoid touching to the parts on C.B.A., a rubber spacer (t=0.8) is added on the mechanical chassis (around the head of screw).
When servicing, attach a vinyl tape instead of this spacer if it touches to the parts.

10 — 2 Classification : Not changed

(Three types are manufactured from the end of October, '90)

10 — 3 Interchangeability : Possible

However, because the revised figure of Guide Rail Ass'y(3) (DY4 — 2872 — 000, for the drum base (M) mounting) has not been issued yet, the drum base(3) cannnot be mounted.*

As service parts, the two types only are provided.(Drum base + Guide Rail Base(2), Drum base(A))
When replacing the Drum Base(M), use the Drum Base(A).
The new screws are provided as service parts.

* The revised figure of Guide Rail Ass'y(3) will be issued later.

11. Parts Control Information

11 — 1 Deleted parts:N/A

11 — 2 Change parts

DY4 — 2759 — 000	New only added after Old stock depletion.
Y22 — 8139 — 000	New only added.

Old

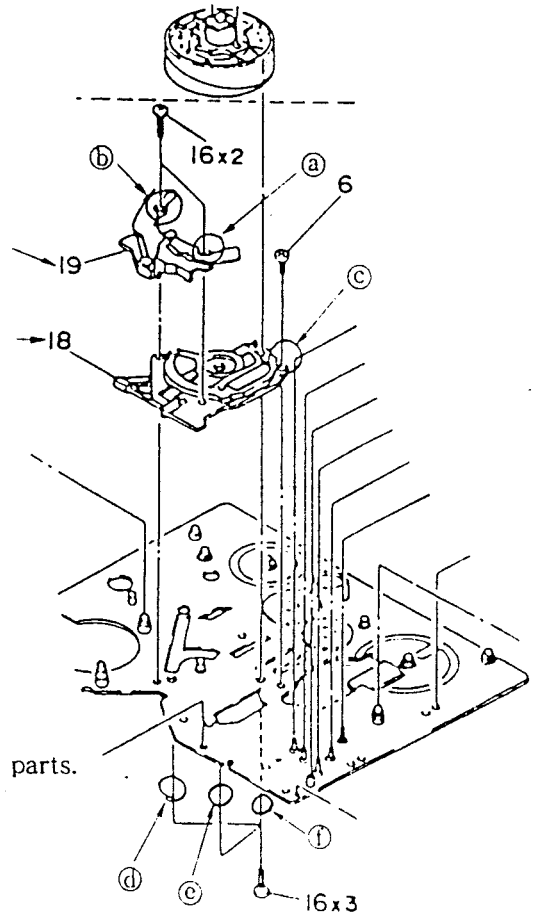
①Guide Rail Base (2)
(DY4 – 2782 – 000)

②Drum Base
(DY4 – 2765 – 000)

⇩

New
①+②

Drum Base
(DY4 – 2953 – 000)
or
Drum Base
Not provided as service parts.



* For changes of screws, refer to the tables.

9 — 2 Classificatiopn : Not changed (Changes from the beginning of November, '90)

9 — 3 Interchangeability : Possible if the SW arm is eliminated.

9 — 4 Repair Information :

The new leaf switch (Y22 — 8139 — 000) only is added after the old stock is depleted.

10. Drum Base and Guide Base(2) Change

10 — 1 Change

For manufacturing efficiency, the drum base (aluminum diecast) and the guide rail base(2) (mold) are united. In addition, the drum bases(A) (mold) and (M) (aluminum diecast) are manufactured.

With this change, the screws are changed.(Refer to the figure and tables in the next pages.)

Old		New
·TG1 Arm Ass'y	(DY4－2879－0000)	→ TG1 Arm Ass'y. (DY4－2950－000)
·String Ass'y	(DY4－2776－000)	
·Joint Holder	(DY4－2827－000)	
·Coil Spring	(DY4－2818－000)	→ DY4－2951－000

7－2 Classification : Not Changed

(Changes from the end of October, '90)

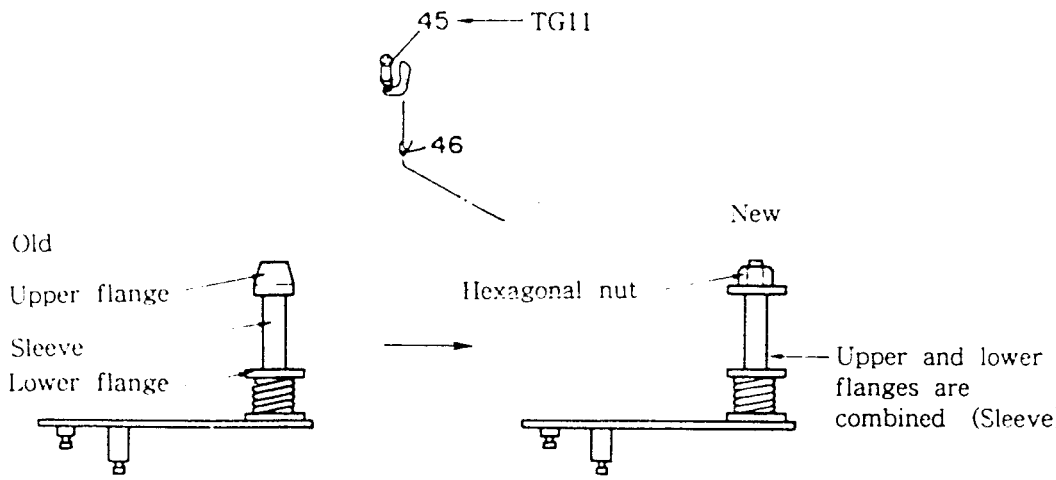
7－3 Interchangeability : Impossible

	Old	New
Individual parts for TG1 Arm (3 parts)	↕	↕
Coil Spring	Old	New

8. TG11 Change

8－1 Change

For cost efficiency, the structure of TG11 has been changed.



8 – 2 Classification : Not changed

(Changed from the end of September, '90)

8 – 3 Interchangeability : Possible

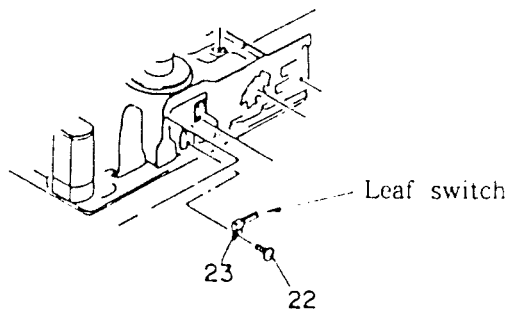
8 – 4 Repair Information :

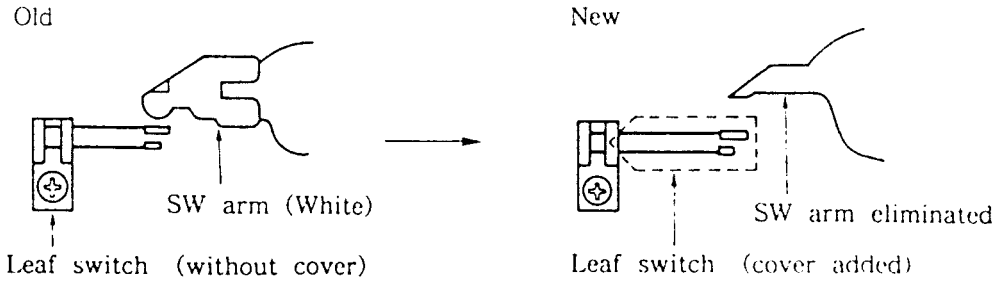
The TG11 is adjustable by a cutting pliers.
The new part (DY4 – 2759 – 000) only is added after the old stock is depleted.

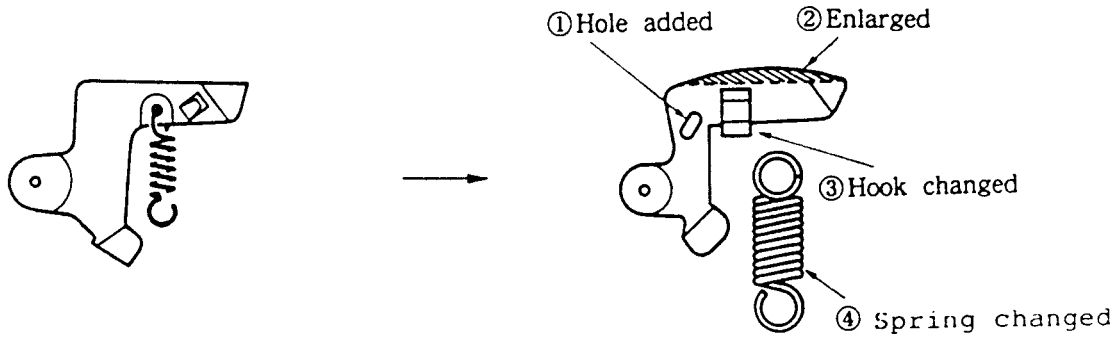
9. Leaf Switch and LS Chassis Change

9 – 1 Change

To protect the unit from the dust particles, the leaf switch is covered as follows.
With this change, the SW arm at a side of LS chassis is eliminated.







5 – 2 Classification : Not changed

(Changes from the beginning of December, '90)

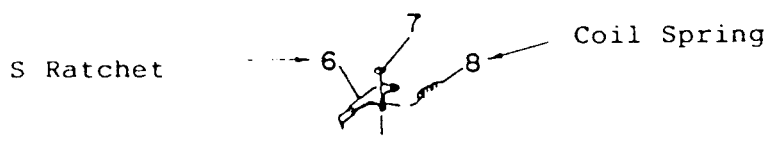
5 – 3 Interchangeability:

S Soft Arm	Old	New
	↕	↕
Coil Spring	Old	New

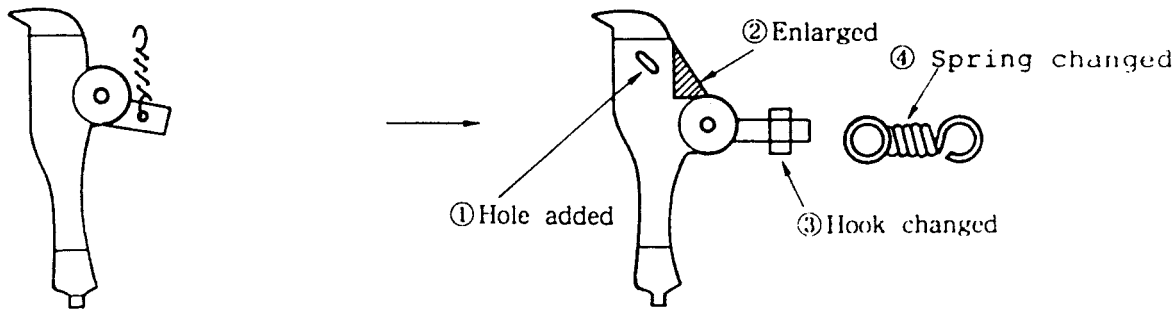
6. S Ratchet and Coil Spring Change

6 – 1 Change

For the automatization in our plant, the S Ratchet and coil spring are changed.



	Old	New
·S Ratchet(DY4－2840－000)		→DY4－2948－000
·Coil Spring (DY4－2826－000)		→DY4－2949－000



6－2 Classification : Not changed

(Changes from the beginning of December '90)

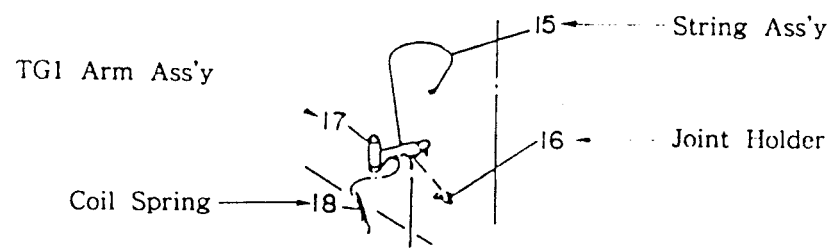
6－3 Interchangeability : Impossible

	Old	New
S Ratchet	Old	New
Coil Spring	Old	New

7. TG1 Arm Change

7－1 Change

For the automatization in our plant, the TG1 Arm parts are united as an assembly and its coil spring have been changed.



4 — 2 Classification : Not changed

(For the E08A/A10E,F, the change will be adopted from the first lot of production)

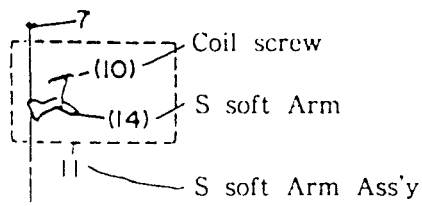
4 — 3 Interchangeability : Impossible

LS chassis	Old ↕	New ↕
Guide rails	Old	New

5. S Soft Arm and Coil Spring Change

5 — 1 Change

For the automatization in our plant, the S Soft Arm and coil spring have been changed.



Old	New
·S Soft Arm Ass'y (DY4 — 2763 — 000)	→ Deleted as an assembly.
·S Soft Arm (DY4 — 2841 — 000)	→ DY4 — 2946 — 000
·Coil Spring (DY4 — 2819 — 000)	→ DY4 — 2947 — 000

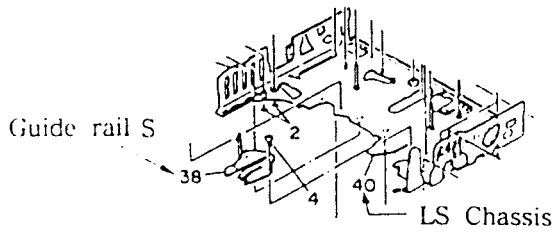
3 – 3 Interchangeability : Impossible

Mechanical chassis	Old ↕	New ↕
Screw	Old	New

4. Shapes of LS Chassis and Guide Rail Change

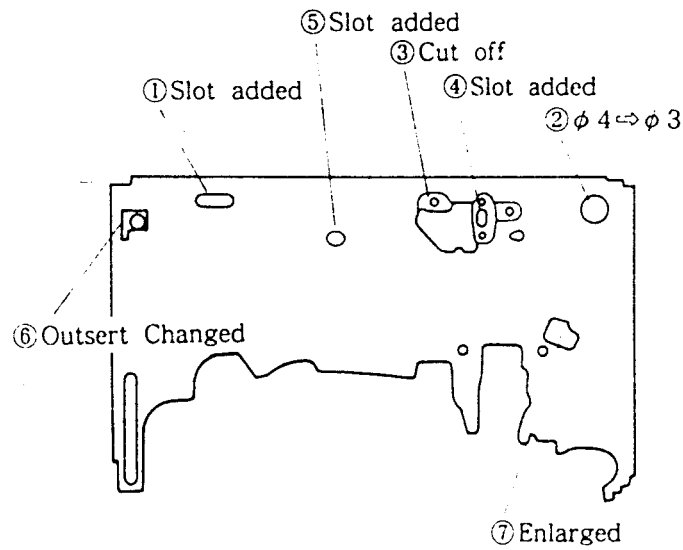
4 – 1 Change

For the automatization in our plant, the shapes of LS chassis and guide rail are changed.

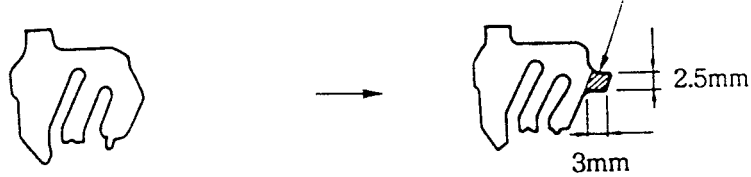


〈LS Chassis〉
Old (DY4 – 2885 – 000)
⇩
New (DY4 – 2945 – 000)
· ①~⑦ indicated in the right figure are the revisions.

〈Guide rail S〉
Old (DY4 – 2845 – 000)



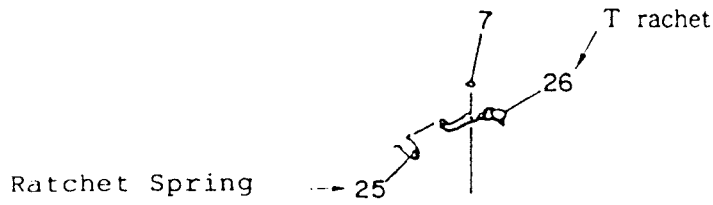
New (DY4 – 2952 – 000)



2. T Ratchet and Ratchet Spring Change

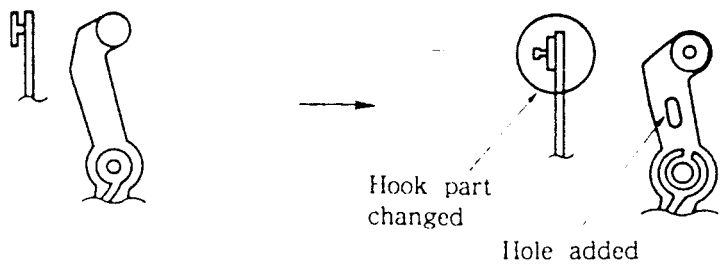
2 – 1 Change

For the automatization in our plant, the shape of T ratchet and ratchet spring have been changed.



〈T rachet〉

Old (DY4 – 2779 – 000) New (DY4 – 2942 – 000)



〈Ratchet Spring〉

Old (DY4 – 2816 – 000) New (DY4 – 2943 – 000)

2 – 2 Classification : Not changed

(Both types will be manufactured from the beginning of November, '90)

2 – 3 Interchangeability : Impossible

T ratchet	Old	New
	↕	↕
Ratchet spring	Old	New

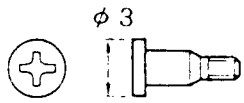
3. Capstan Motor Screw Change

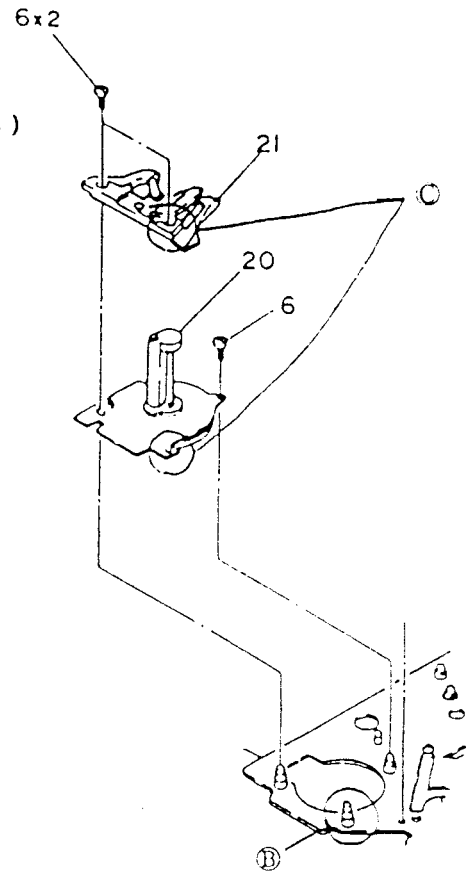
3 – 1 Change

For the automatization in our plant, the mechanical chassis' shift (B in the Fig.) is changed. With this change, the screw (C in the Fig.) is changed.

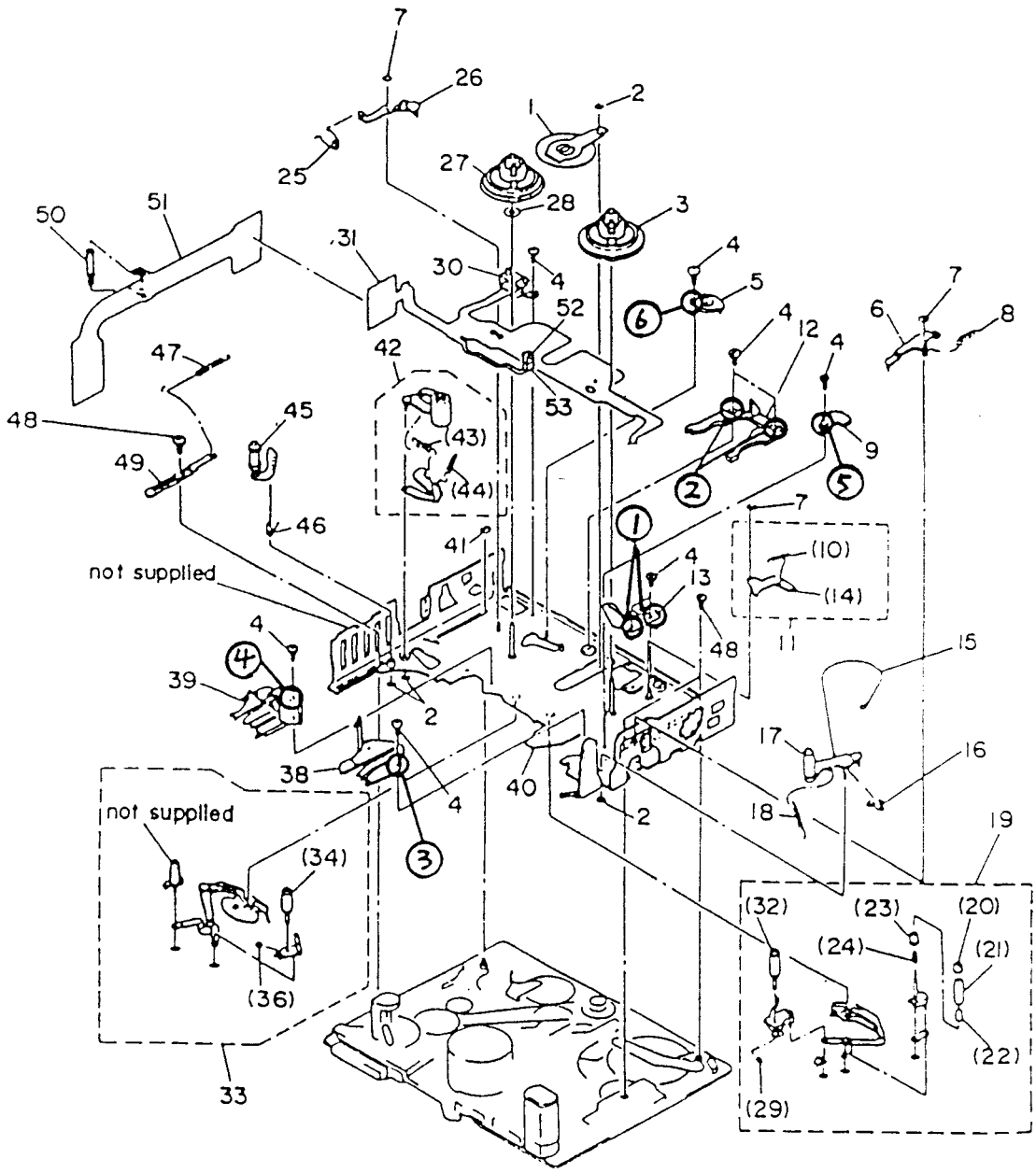
〈Screw〉
Old (DY4 – 2834 – 000)
⇩
New (DY4 – 2944 – 000)

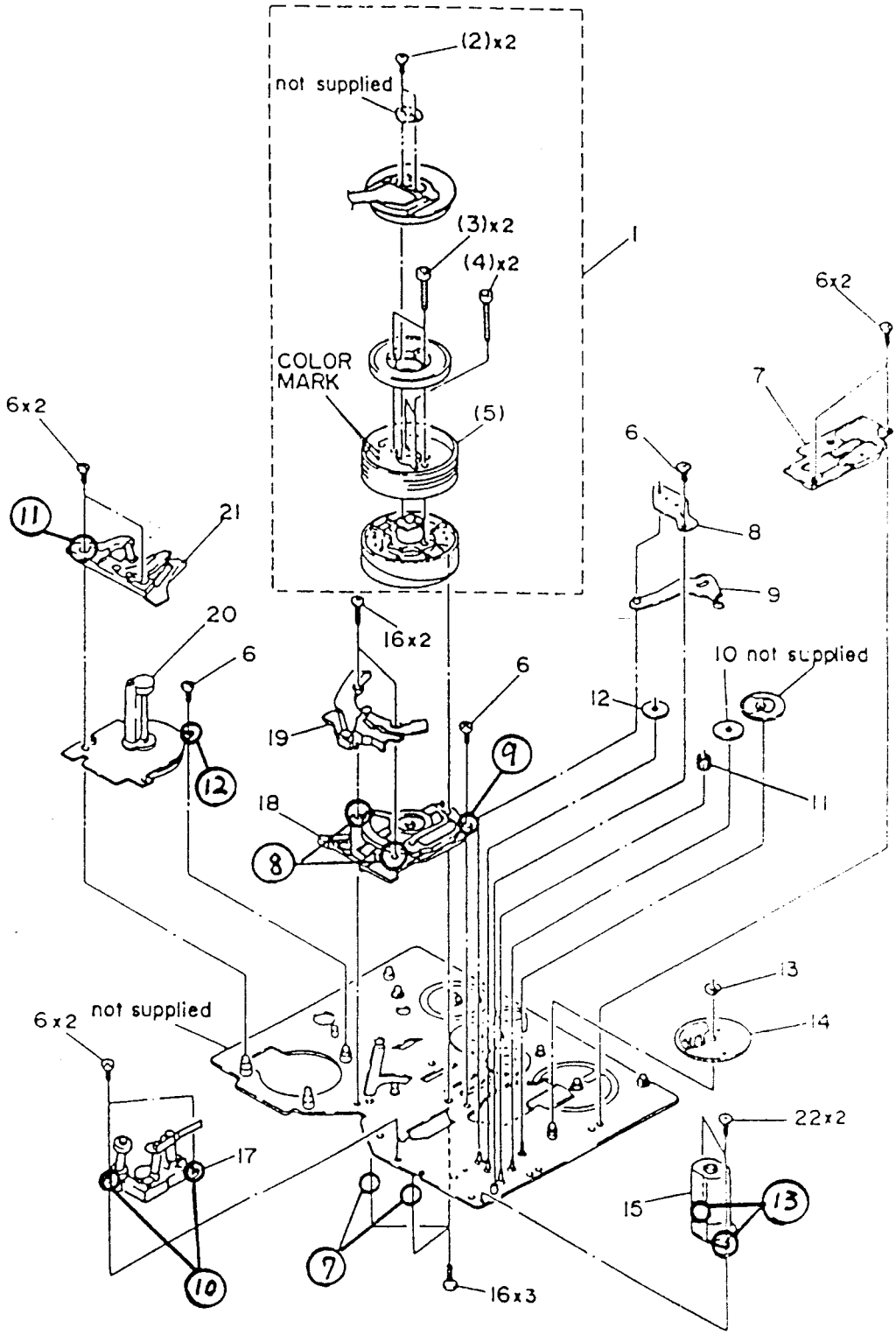
View of Screw





3 – 2 Classification : Not changed (Changes from the beginning of November, '90)


not supplied
not supplied


(2)x2
not supplied
(3)x2
(4)x2
1
COLOR MARK
(5)
6x2
7
6x2
6
8
9
21
20
16x2
10 not supplied
6
6
12
19
9
11
18
8
13
6x2
not supplied
14
22x2
17
15
13
10
7
16x3

Canon VIDEO SERVICE MANUAL REPORT
Technical Service Department, Canon Inc.

Report No. AD－429N·P·F－PAL 1/17
Date October 20,1990

NTSC
PAL
F-PAL

Canon MC－FL

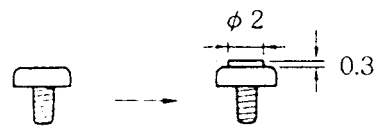
1. Screw Shape Change
2. T Ratchet and Ratchet Spring Change
3. Capstan Motor Screw Change
4. Shapes of LS Chassis and Guide Rail Change
5. S Soft Arm and Coil Spring Change
6. S Ratchet and Coil Spring Change
7. TG1 Arm Change
8. TG11 Structure Change
9. Leaf Switch and LS Chassis Change
10. Drum Base and Guide Rail Base(2) Change
11. Parts Control Information

1. Screw Shape Change

1－1 Change

For the automatization in our plant, the shape of screw has been changed as follows.

* For servicing, use the existing screw.



〈Positions〉

① LS cam plate and LS chassis (×2)
② RL base and LS chassis (×2)
③ Guide Rail S (×1)
④ Guide Rail T and LS chassis (×1)
⑤ TG1 adjuster and LS chassis (×1)
⑥ Oneway clutch and LS chassis (×1)
⑦ Drum base and drum unit (×2)
⑧ (Drum base + Guide Rail) and mechanical chassis (×2)
⑨ Drum base and mechanical chassis (×1)
⑩ Guide rail(1) and mechanical chassis (×2)
⑪ Guide rail(3) and mechanical chassis (×1)
⑫ Capstan motor and mechanical chassis (×1)
⑬ Loading motor and mechanical chassis (×2)

Supplement

During the production, some adjustments, part Nos., descriptions in the Service Manual were revised. The all revisions have been informed on the Service Manual Reports periodically, and this Supplement is composed of them.

SERVICE MANUAL REPORT INDEX

SMR NO.	DATE	MODEL	NO. TITLE
AD-429N·P· F-PAL	'90.10	MC-FL	1. Screw Shape Change 2. T Ratchet and Ratchet Spring Change 3. Capstan Motor Screw Change 4. Shapes of LS Chassis and Guide Rail Change 5. S Soft Arm and Coil Spring Change 6. S Ratchet and Coil Spring Change 7. TG1 Arm Change 8. TG11 Structure Change 9. Leaf Switch and LS Chassis Change 10. Drum Base and Guide Rail Base (2) Change 11. Parts Control Information
AD-456P F-PAL	'90.12	A10E/F	1. Classification No. 2. Screw Change 3. Pattern of Camera-Key C.B.A. Change 4. Parts Control Information
AD-474N·P F-PAL	'91. 3	E08A·E/ A10E·F	1. Part No. Correction (IC2302) 2. Circuit Diagram Corrections 3. Readjustment of AF Clock 4. Parts Control Information
AD-485N·P F-PAL	'91. 4	E08A/ A10E·F	1. Remedy for Latch-Up by Malfunction of IC551 2. Parts Catalog Corrections 3. Parts Control Information
AD-495P· F-PAL	'91. 5	A10E/F	1. Classification No. (00→01) 2. Classification No. (01→02) 3. Classification No. (02→03) 4. Classification No. (03→04)
AD-504N·P· F-PAL	'91. 6	E08A, A10E, F	1. Remedy for Drop-off of Recorder Holder's Stopper Screws

SMR NO.	DATE	MODEL	NO. TITLE
AD-505N·P·F-PAL	'91. 6	MC-FL	1. Change of Service Parts
AD-523N·P·F-PAL	'91. 8 9	MC-FL	1. Parts Deleted 2. Parts Control Information
AD-567N·P·F-PAL	'92. 1	MC FL	1. Parts Consolidation 2. Parts Control Information
AD-590N·P·F-PAL	'92. 5	MC-FL	1. Part No. Changed 2. Parts Control Information
AD 602N·P·F	'92. 7	MC-FL	1. Part Added (Mode SW P.C.B. Assembly) 2. Parts Control Information